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From Textual Simplification to Epistemic Justice: Large Language Models and Digital Dispute Resolution

Dalla semplificazione testuale alla giustizia epistemica: modelli linguistici e risoluzione digitale delle controversie

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Abstract

As legal services become digital by default, large language models (LLMs) increasingly mediate how individuals interpret legal information and navigate out of court dispute resolution. This paper examines how LLM mediated systems reshape epistemic accessibility, understood as users' capacity to recognise legally relevant problems, interpret legal categories, and assess procedural options. Adopting an interpretive-conceptual methodology, it argues that LLMs can both enhance interpretive support and reproduce hermeneutical injustice through probabilistic generation, opaque provenance, and the reinforcement of dominant legal framings. The paper develops a socio-technical account of these dynamics and advances three design principles: i) situated linguistic adaptation, ii) explainability and traceability, and iii) participatory infrastructure; all illustrated through ongoing EU-funded initiatives.

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Abstract
La progressiva digitalizzazione dei servizi legali sta trasformando in profondità le modalità attraverso cui le persone accedono alle informazioni giuridiche e si orientano nei meccanismi di risoluzione extragiudiziale delle controversie. In questo contesto, i modelli linguistici di grandi dimensioni (Large Language Models, LLM) assumono un ruolo sempre più centrale come mediatori dell'interpretazione giuridica. Il contributo analizza l'impatto di tali sistemi sull'accessibilità epistemica, intesa come la capacità degli utenti di riconoscere la rilevanza giuridica di determinate situazioni, comprendere le categorie del diritto e valutare le possibili opzioni procedurali. Attraverso un approccio interpretativo-concettuale, si argomenta che gli LLM possano sia facilitare i processi di comprensione giuridica sia contribuire alla riproduzione di forme di ingiustizia ermeneutica. Ciò avviene in ragione della natura probabilistica dei contenuti generati, dell'opacità delle fonti informative e della tendenza a consolidare cornici giuridiche dominanti. Il lavoro sviluppa una lettura socio-tecnica di queste dinamiche e individua tre principi di progettazione: i) adattamento linguistico situato; ii) spiegabilità e tracciabilità; iii) infrastrutture partecipative, illustrati attraverso iniziative attualmente finanziate dall'Unione europea.

Keywords: Access to justice; epistemic justice; large language models; online dispute resolution; legal linguistics

Summary: 1. Introduction. – 2. Methodological Approach and Analytical Framework. – 3. Legal Meaning and Epistemic (In)justice. – 4. LLMs in Online Dispute Resolution: Mediation, Opportunities, and Risks. – 4.1 The Functions of LLMs in Legal Guidance and ODR Contexts. – 4.2 Risks in Generative Legal Mediation. – 4.3 Architectural Sources of Error and Asymmetry. – 4.4 Design Implications for Interpretive Support. – 4.5 Generative Mediation and the Need for Epistemic Safeguards. – 5. Design Principles for Interpretive Support in Legal AI. – 6. Operationalising Epistemic Accessibility: DEUCE and CREA3. – 6.1 DEUCE: Traceable simplification and epistemic scaffolding in cross-border procedures. – 6.2 CREA3: Grounded and jurisdiction-sensitive legal mediation in family-law disputes. – 7. Conclusion.

1. Introduction.

Access to justice debates have long emphasised financial, geographic, and institutional obstacles. A substantial body of socio-legal and empirical research shows, however, that many of the most persistent barriers are epistemic: individuals struggle to recognise legally relevant problems, to understand the categories and procedures through which institutions operate, and to evaluate the implications of different courses of action.[1] As legal systems become increasingly digital-by-default, these epistemic burdens are reconfigured

[1] B Wszalek, 'Why Legal Texts Are Difficult to Understand: Cognitive and Linguistic Barriers' (2017) 7 International Journal of Law, Language & Discourse 27; W Lin, J Liu and X Zhou, 'Syntactic Complexity in Legal English: A Corpus-Based Comparison of Legal and Translated Legal Texts' (2023) 12 Journal of English for Legal Purposes 85 <https://doi.org/10.1016/j.jelp.2023.100012>; New Zealand Law Commission, *Justice and the Legal Knowledge Gap: Access to Law in Aotearoa New Zealand* (Issues Paper IP29, 2012) <https://www.lawcom.govt.nz/> accessed 5 November 2025.

through computational infrastructures that mediate legal understanding - including interfaces, informational guidance, and automated forms of interaction. Within this landscape, the growing use of large language models (LLMs) marks a qualitative shift: rather than merely delivering pre-structured information, LLM-mediated systems actively generate explanations, translate procedural categories into everyday language, and shape users' interpretation of rights, options, and likely outcomes.

Given this backdrop, this paper is guided by a single overarching question: how do large language models – mediated systems reshape epistemic accessibility in online and out-of-court dispute resolution, and under what socio-technical conditions can they support epistemic empowerment rather than reproduce hermeneutical injustice?

The question arises from the growing deployment of generative systems in user-facing legal services, where they increasingly operate as linguistic and procedural intermediaries.[2]

The analysis adopts a deliberately delimited focus. It examines LLM-based tools used in digital self-help interfaces and ODR environments, without addressing full court adjudication, empirical outcome evaluation, or digitalisation initiatives unrelated to AI. The concern is with epistemic conditions - interpretive resources, communicative structures, and procedural intelligibility - rather than with doctrinal correctness or efficiency gains.

Within this scope, the paper contributes by developing a conceptual account of epistemic accessibility tailored to digitally mediated legal environments and by specifying a set of normative–technical design principles for legal GenAI systems. While existing scholarship identifies epistemic barriers in legal communication and documents how digital infrastructures structure user interaction, it does not provide an integrated socio-technical framework for understanding how LLMs mediate legal meaning or for designing systems that mitigate epistemic exclusion. This paper addresses that gap by synthesising insights from socio-legal studies, legal linguistics, epistemic injustice theory, HCI, and AI governance to articulate conditions under which LLM-mediated systems can enhance rather than constrain users' interpretive agency.

Section 2 outlines the methodological approach; Section 3 examines epistemic barriers in legal communication; Section 4 analyses how LLMs reconfigure these barriers; and Section 5 derives three design principles - situated linguistic adaptation, explainability and traceability, and participatory infrastructure - illustrated through ongoing EU-funded initiatives (SCAN2, CREA3, DEUCE). These examples serve solely to demonstrate feasibility, not to provide empirical validation.

[2] N Runyon, 'Chatbots for Justice: The Impact of AI-Driven Tech Tools for Pro Se Litigants' (Thomson Reuters Institute, 2025) <https://www.thomsonreuters.com/en-us/posts/ai-in-courts/chatbots-pro-se-litigants/> accessed 11 November 2025; S Lynch, 'Harnessing AI to Improve Access to Justice in Civil Courts' (Stanford Institute for Human-Centered Artificial Intelligence, 2025) <https://hai.stanford.edu/news/harnessing-ai-to-improve-access-to-justice-in-civil-courts> accessed 8 November 2025.

2. Methodological Approach and Analytical Framework.

This paper adopts an interpretive–conceptual methodology to analyse how large language models (LLMs) mediated systems shape epistemic accessibility in digitally mediated dispute resolution. The approach reconstructs scholarship across socio-legal studies, legal linguistics, epistemic injustice theory, HCI, and AI governance to develop a socio-technical account of the epistemic conditions structuring user interaction with legal technologies. The aim is normative and analytical rather than empirical: the paper synthesises existing research to derive design principles addressing the epistemic risks posed by generative systems.

The synthesis proceeded in three steps. First, relevant literature was reviewed to identify how legal meaning becomes accessible or opaque to lay users. Second, these accounts were organised into linguistic, procedural, and computational mechanisms that shape interpretive capacity in digital environments. Third, insights from AI governance and LLM evaluation were integrated to characterise the epistemic dynamics specific to generative systems. This iterative procedure informed the conceptual structure used in subsequent sections.

Literature inclusion followed explicit criteria. Works were included when they examined: (1) how legal meaning is produced and communicated; (2) how digital infrastructures mediate user interpretation; or (3) how AI systems, and LLMs in particular, transform these dynamics. Socio-legal analyses of naming and claiming[3] and legal-linguistic studies of syntactic complexity[4] were included because they illuminate interpretive burdens. Studies addressing digitalisation only in terms of efficiency or doctrinal accuracy were excluded. The review is selective and purpose-driven, oriented by conceptual relevance rather than disciplinary exhaustiveness.

3. Legal Meaning and Epistemic (In)justice.

Legal meaning is produced through institutional, linguistic, and socio-cultural processes rather than being inherent in statutory texts.[5] Legal language functions as a specialised register characterised by dense syntax, formal genre conventions, and domain-specific terminology that inhibit lay comprehension.[6] These features generate what this paper terms epistemic

[3] WLF Felstiner, RL Abel and A Sarat, 'The Emergence and Transformation of Disputes: Naming, Blaming, Claiming' (1980) 15 Law & Society Review 631; P Ewick, SS Silbey, *The Common Place of Law: Stories from Everyday Life* (University of Chicago Press 1998); WLF Felstiner, RL Abel and A Sarat, 'The Emergence and Transformation of Disputes: Naming, Blaming, Claiming' (1980) 15 Law & Society Review 631.

[4] B Wszalek, 'Why Legal Texts Are Difficult to Understand: Cognitive and Linguistic Barriers' (2017) 7 International Journal of Law, Language & Discourse 27.

[5] P Bourdieu, 'The Force of Law: Toward a Sociology of the Juridical Field' (1987) 38 Hastings Law Journal 805; P Goodrich, *Languages of Law: From Logics of Memory to Nomadic Masks* (Weidenfeld and Nicolson 1987).

[6] PM Tiersma, *Legal Language* (University of Chicago Press 1999); J Gibbons (ed), *Language and the Law* (Routledge 2004).

opacity: communicative structures that obscure how legal concepts relate to users' interpretive resources. Users experience epistemic burdens when they must bridge these gaps without adequate scaffolding. Epistemic accessibility refers to the extent to which individuals can interpret legal information, situate it within their lived contexts, and act upon it.

Such barriers contribute to patterns of epistemic injustice. Testimonial injustice arises when lay speakers' accounts are discounted due to credibility deficits, while hermeneutical injustice occurs when individuals lack the interpretive resources needed to render their experiences legible within legal categories.[7] Socio-legal research consistently shows that many users - especially those marginalised by language, class, or institutional distance - struggle both to identify problems as legal and to navigate procedural pathways.[8]

Psycholinguistic studies reinforce this picture by demonstrating how multi-clause sentences, nominalisations, and hypotactic constructions impose heavy inferential demands.[9] Even highly literate users often construct inaccurate mental models of obligations or procedural options.[10] These cognitive effects render publicly available legal content functionally inaccessible. The limitations of purely stylistic interventions have been well documented. While plain-language drafting improves readability,[11] legal complexity is intertextual and systemic: many terms acquire meaning only through precedent, institutional role, or procedural context.[12] Reducing linguistic surface features therefore does not resolve deeper interpretive dependencies.

Legal semiotics further explains why these problems persist. Legal communication is a mediated process shaped by framing choices, institutional priorities, and genre constraints.[13] From the perspective of epistemic injustice, these semiotic structures matter because they determine which interpretive routes are made available. When legal meaning is framed exclusively through institutional categories or procedural logics, users who rely on vernacular narratives lack the semiotic resources needed to translate their experiences into legally actionable forms. Hermeneutical injustice thus emerges not only from linguistic difficulty but from the way legal institutions structure meaning-making itself. Epistemic accessibility therefore cannot be achieved through linguistic simplification alone. It requires mediating arrangements that connect formal legal discourse with users' cognitive, narrative, and socio-legal resources. Traditionally, human intermediaries - lawyers, clerks, judges - performed this function. As digital infrastructures increasingly structure how

[7] M Fricker, *Epistemic Injustice: Power and the Ethics of Knowing* (Oxford University Press 2007).
[8] P Ewick, SS Silbey, *The Common Place of Law: Stories from Everyday Life* (University of Chicago Press 1998); RL Sandefur, 'Access to What?' (2014) 143 Daedalus 49.
[9] B Wszalek, 'Why Legal Texts Are Difficult to Understand: Cognitive and Linguistic Barriers' (2017) 7 International Journal of Law, Language & Discourse 27.
[10] J Kimble, *Writing for Dollars, Writing to Please: The Case for Plain Language in Business, Government, and Law* (Carolina Academic Press 2016).
[11] MA Blasie, 'The Rise of Plain Language Laws' (2022) 76 University of Miami Law Review 379.
[12] Z Ződi, 'The Limits of Plain Legal Language: Understanding the Comprehensible Style in Law' (2019) 4 International Journal of Legal Discourse 49.
[13] BS Jackson, *Semiotics and Legal Theory* (Routledge & Kegan Paul 1985); R Kevelson, *The Law as a System of Signs* (Plenum Press 1988).

users encounter and interpret legal information, these mediating arrangements are now partially encoded in interfaces, workflow logics, and automated guidance tools. Understanding how these systems reshape interpretive conditions is the focus of the next section.

4. LLMs in Online Dispute Resolution: Mediation, Opportunities, and Risks.

The preceding sections showed that epistemic accessibility depends on how linguistic, institutional, and semiotic structures shape users' capacity to make sense of legal information. Digital infrastructures re-encode these structures through interface logic and procedural modelling. Building on this foundation, the current section examines how large language models (LLMs) transform these epistemic dynamics by operating as generative mediators-systems that do not merely transmit legal content but actively reformulate, prioritise, and contextualise information through probabilistic generation.

Generative mediation refers to the process by which LLMs rearticulate user inputs and legal materials through prediction-driven linguistic synthesis. Because these models optimise probabilistic coherence rather than semantic or legal correctness, their outputs reshape the interpretive environment: they filter what is salient, frame what is relevant, and construct linguistically fluent representations that can either scaffold or distort legal understanding.[14] This property is central to their role in online dispute resolution (ODR) and self-help legal interfaces.

4.1 The Functions of LLMs in Legal Guidance and ODR Contexts.

LLMs can paraphrase statutory language, summarise procedural requirements, structure step-by-step guidance, and maintain adaptive dialogue. Their capacity to produce accessible explanations is well documented in legal information retrieval, statutory summarisation, and ODR prototyping.[15]

Systems such as LLMediator[16] illustrate how generative components can be integrated with structured knowledge bases to guide users through dispute-resolution pathways. Other implementations demonstrate improvements in interpreting Digital Services Act Statements of Reasons by linking moderation decisions to relevant Terms of Service.[17] These applications exemplify the linguistic and interactive affordances that contribute to epistemic accessibility: adaptive reformulation, contextual framing, analogical explanation, and

[14] AF Ferraris and others, 'The Architecture of Language: Understanding the Mechanics Behind LLMs' (2025) 1 Cambridge Forum on AI: Law and Governance e11 <https://doi.org/10.1017/cfl.2024.16>.

[15] DM Katz, MJ Bommarito, 'GPT-4 Passes the Bar Exam' (2023) *SSRN* <https://doi.org/10.2139/ssrn.4389233>; Z Zhong and others, 'JEC-QA: Legal Judgment Prediction with Explanation and Counterfactual Question Answering' (2022) *Findings of the ACL*.

[16] H Westermann, V Dignum, F Rossi, 'LLMediator: Legal Guidance Chatbot for Dispute Resolution' (AI4A2J@JURIX Workshop 2023).

[17] M Aspromonte and others, 'LLMs to the Rescue: Explaining DSA Statements of Reason with Platform Terms of Service' (2024) *Proceedings of the Natural Legal Language Processing Workshop (NLLP 2024)* <https://aclanthology.org/2024.nllp-1.17>.

iterative clarification.[18] Furthermore, in ODR research is possible here, classical analyses emphasise that user guidance is effective when systems structure procedural pathways transparently and maintain dialogic, step-wise interaction patterns.[19] Incorporating these insights clarifies that LLMs do not merely add linguistic fluidity but potentially extend long-standing architectures of guided interaction by creating adaptive, turn-based scaffolding tailored to users' evolving informational states.

Recent studies show that LLMs can perform summarisation, drafting, extraction, and Q&A tasks at levels comparable to junior practitioners, while still requiring human verification.[20] Experiments in ODR contexts demonstrate that GPT-4o can generate mediation interventions rated similarly to non-expert human mediators.[21] Commentary highlights their role in extending basic legal guidance to users facing structural access barriers,[22] while courts increasingly frame LLMs as high - volume assistants rather than substitutes.[23]

4.2 Risks in Generative Legal Mediation.

The same generative capacities introduce epistemic risks. Evaluations consistently show that LLMs may fail to identify relevant legal issues, apply multi-step reasoning, or respect jurisdiction-specific rules.[24] Fluent but inaccurate responses – hallucinations, omissions, or unwarranted generalisations[25] – produce epistemic opacity: users cannot assess the reliability or provenance of the information presented. These systems may inadvertently reassert institutional framings embedded in their training corpus, reproducing the exclusivity of legal language documented by Billa.[26] If presented without signalling uncertainty or contextual limitations, generative outputs can displace user agency and obscure normative disagreement.

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[18] B Hough, M Schmidt, 'Self-Help and the Limits of Legal Information' (2020) 16 Annual Review of Law and Social Science 231; BS Jackson, *Semiotics and Legal Theory* (Routledge & Kegan Paul 1985); R Kevelson, *The Law as a System of Signs* (Plenum Press 1988).

[19] AR Lodder, J Zeleznikow, 'Constructing Legal Knowledge Systems through Co-Design: Experiences from the Dutch Legal Aid Board' (ICAIL Visual Law Workshop 2011).

[20] Y Lai and others, 'Large Language Models in Law: A Survey' (2023) *AI Open*; JH Choi, AB Monahan and D Schwarcz, 'Lawyering in the Age of Artificial Intelligence' (2024) 109 Minnesota Law Review 147.

[21] J Tan and others, 'Robots in the Middle: Evaluating LLMs in Dispute Resolution' in J Šavelka and others (eds), *Legal Knowledge and Information Systems - JURIX 2024: 37th Annual Conference* (IOS Press 2024) vol 395 *Frontiers in Artificial Intelligence and Applications* 168–179 <https://doi.org/10.3233/FAIA241243>.

[22] D Simshaw, 'Access to A.I. Justice: Avoiding an Inequitable Two-Tiered System of Legal Services' (2022) 24 Yale Journal of Law and Technology 145, esp 165–168.

[23] M Zou and E Lefley, 'Generative AI and Article 6 of the European Convention on Human Rights' in M Zou and others (eds), *The Cambridge Handbook of Generative AI and the Law* (CUP 2025) 451–471, ch 25, DOI: 10.1017/9781009492553.031.

[24] N Holzenberger and others, 'LawBench: A Benchmark for Multistep Legal Reasoning in LLMs across Jurisdictions' (2023) *Proceedings of EMNLP* 1.

[25] Z Ji and others, 'Survey of Hallucination in Natural Language Generation' (2023) 55 ACM Computing Surveys 1.

[26] B Billa, 'Law as Code: Exploring Information, Communication and Power in Legal Systems' (2024) 2 Journal of Cross-disciplinary Research in Computational Law 1.

Empirical evidence shows that these affordances are coupled with significant accuracy risks. Empirical evaluations of LLM-supported legal research show that hallucinations remain substantial, including inaccurate or unsupported attributions to legal authority, meaning outputs are not professionally reliable without systematic verification and supervision.[27] The widely discussed case of Mata v. Avianca illustrates how such hallucinations can translate directly into procedural harm, where a brief filled with fabricated precedents led to court sanctions.[28] Daniel Necz,[29] similarly warn that access - to - justice chatbots may misinform citizens about their rights while projecting an unwarranted aura of expertise, particularly when users lack the capacity to detect legal errors. These findings reinforce that fluent but opaque responses can undermine epistemic accessibility in precisely those contexts where users are most vulnerable.

4.3 Architectural Sources of Error and Asymmetry.

These risks are structural consequences of model architecture and training data composition. Transformer-based models generate responses through statistical patterning rather than interpretive reasoning;[30] attention mechanisms and context-window limitations inherently filter user input and source material in ways that may distort legal salience. Moreover, training datasets dominated by doctrinal or institutional texts embed specific semiotic and hermeneutical assumptions. Recent analyses show that LLMs may generate legally styled text without authoritative grounding, exhibit sycophantic responses that avoid expressing uncertainty, and perform poorly in jurisdictions under-represented in their training data.[31]

Broader surveys also highlight linguistic and jurisdictional imbalances in legal corpora and emphasise the predominance of text-centric architectures that struggle with non-textual evidence.[32] These structural limitations are compounded by resource asymmetries, as only well-resourced actors can develop reliable retrieval-augmented systems.[33] This links directly to the framework established in Sections 2 and 3: the linguistic and institutional

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[27] V Magesh and others, 'Hallucination - Free? Assessing the Reliability of Leading AI Legal Research Tools' (2025) 22(2) Journal of Empirical Legal Studies 216–242 <https://doi.org/10.1111/jels.12413>; M Dahl and others, 'Large Legal Fictions: Profiling Legal Hallucinations in Large Language Models' (2024) 16(1) Journal of Legal Analysis 64–93 <https://doi.org/10.1093/jla/laae003>.

[28] *Mata v Avianca Inc* (SDNY 2023).

[29] D Necz, 'Rules over words: Regulation of chatbots in the legal market and ethical considerations' (2023) 64(3) Hungarian Journal of Legal Studies 472.

[30] EM Bender and others, 'On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?' (2021) *Proceedings of the ACM Conference on Fairness, Accountability, and Transparency* 610.

[31] O Ruhil, 'The Evaporation of the Signifier' (2025) International Journal for the Semiotics of Law.

[32] YS Jayakumar and others, 'Large Language Models are Legal but They are Not: A Survey on Legal Large Language Models' in *Proceedings of the Natural Legal Language Processing Workshop 2023* (Association for Computational Linguistics 2023).

[33] Q Zhao, T Gao and N Guo, 'Beyond Text: Fusing Multi-modal Legal Knowledge for Legal Judgment Prediction' (2025) 329 (Part B) Knowledge-Based Systems 114358 <https://doi.org/10.1016/j.knosys.2025.114358>.

asymmetries that produce epistemic burdens in human-mediated legal communication are reproduced computationally when LLMs encode dominant legal genres, procedural scripts, and institutional framings as default interpretive routes. Generative mediation therefore amplifies the epistemic asymmetries identified earlier, unless counteracted by deliberate system design.

4.4 Design Implications for Interpretive Support.

Recognising these structural dynamics clarifies why mere linguistic simplification is insufficient. Epistemic accessibility requires conditions under which users can understand not only the content of an explanation but also its basis, limits, and alternatives. The shift from simplification to epistemic mediation thus involves enabling users to map lived experiences to legal categories,[34] to verify reasoning, and to situate generative outputs within procedural and normative context. LLMs can contribute to this objective when embedded in systems that provide structured transparency, contestability, and adaptive scaffolding. This includes source attribution and verification mechanisms; dialogic interfaces that test understanding and provide clarifications; participatory design processes that integrate diverse epistemic perspectives; and alignment safeguards that mitigate hallucinations and normative drift.[35]

Such features transform generative mediation from a source of opacity into a structured interpretive resource. Recent proposals emphasise hybrid neuro-symbolic architectures, retrieval augmented generation grounded in authoritative corpora, multiagent checking, and database backed verification as central safeguards for legal LLM systems.[36] These approaches aim to reduce hallucinations, provide provenance for generated content, and align outputs with validated legal sources, reinforcing recent access to justice findings on the need for ex ante constraints rather than reliance on user-side verification.

[34] WLF Felstiner, RL Abel and A Sarat, 'The Emergence and Transformation of Disputes: Naming, Blaming, Claiming' (1980) 15 Law & Society Review 631; P Ewick and SS Silbey, *The Common Place of Law: Stories from Everyday Life* (University of Chicago Press 1998); RL Sandefur, 'Accessing Justice in the Contemporary USA: Findings from the Community Needs and Services Study' (2014) American Bar Foundation Research Paper 1 <https://www.americanbarfoundation.org> accessed 5 November 2025.

[35] D Engel and F Munger, 'Sustaining Legal Empowerment through Community-Based Paralegalism' (2020) 54 Law & Society Review 755; P Casanovas, 'Coherence, Institutionalisation, and Ontology in the Legal Domain' (2016) 24 Artificial Intelligence and Law 231.

[36] D Yu and others, 'A Survey on Neural - Symbolic Learning Systems' (2023) Neural Networks; Patrick Lewis and others, 'Retrieval - Augmented Generation for Knowledge - Intensive NLP Tasks' (2020) *Advances in Neural Information Processing Systems (NeurIPS 2020)*; Ferraris AF and others, 'Legal Chunking: Evaluating Methods for Effective Legal Text Retrieval' in *Legal Knowledge and Information Systems: JURIX 2024* (IOS Press 2024) 275; H Li and others, 'LexRAG: Benchmarking Retrieval - Augmented Generation in Multi - Turn Legal Consultation Conversation' (2025) *Proceedings of the ACM Web Conference* (ACM) <https://doi.org/10.1145/3726302.3730340>.

4.5 Generative Mediation and the Need for Epistemic Safeguards.

LLMs therefore occupy a dual position in ODR and digital legal guidance: they can intensify epistemic burdens by embedding architectural constraints and dominant legal framings into user-facing outputs, or they can scaffold interpretive agency by providing accessible, adaptive, and context-sensitive explanations. This ambivalence follows directly from the socio-linguistic and semiotic dynamics analysed in Sections 2 and 3 and the risks and architectural asymmetries identified earlier in this section. If generative systems are to support epistemic empowerment rather than reproduce epistemic exclusion, they must be embedded within architectures that render their mediating function explicit, accountable, and aligned with users' interpretive needs.

5. Design Principles for Interpretive Support in Legal AI.

Sections 2–4 have shown that legal complexity becomes computationally reproduced through interfaces, classification schemas, and generative outputs, generating epistemic burdens that extend well beyond linguistic opacity. Users face not only unfamiliar terminology but also cognitive overload, procedural disorientation, and hermeneutical marginalisation. Research on legal tech solutionism demonstrates that decontextualised and efficiency oriented design choices frequently entrench these burdens by prioritising abstract system logic over situated user realities.[37] Recent empirical work on GAI-based legal text reformulation further shows that ostensibly clearer outputs may remain functionally inadequate, insufficiently contextualised, or misleading, creating new layers of interpretive risk.[38]

Addressing these multi-layered challenges requires design interventions that respond directly to the epistemic failures identified earlier: the misalignment between legal and lay narratives, the absence of interpretive transparency, and the exclusion of community-grounded legal knowledge.

We identify three interdependent principles that can guide the development of legal AI systems towards epistemic empowerment: i) Situated Communicative Interactions, ii) Explainability and Traceability, and iii) Participatory Infrastructure. Each principle targets a specific dimension of epistemic accessibility and draws on interdisciplinary research in legal theory, human–computer interaction, and AI governance.

i) Situated Communicative Interactions.

Epistemic disempowerment often stems from the imposition of abstract or formalistic legal discourse that is misaligned with users' experiences and interpretive resources. This principle responds to such hermeneutical gaps by

[37] SP de Souza, 'The Spread of Legal Tech Solutionism and the Need for Legal Design' (2022) 13 European Journal of Risk Regulation 373.

[38] M Zimina-Poirot, C Gledhill and M Bouyé, 'Towards Clear, Simple, and Inclusive Legal Language: Exploring Generative Artificial Intelligence Models as Content Rephrasing Assistants in Multilingual Settings' (2025) 14 International Journal of Language & Law 143.

enabling systems to adjust register, discourse structure, and narrative framing to users' socio-legal contexts.[39]

Theoretical linguistics emphasises that meaning arises not from decontextualised text but through "context models" (i.e. dynamic mental representations of the communicative situation that shape interpretation).[40] Work on situated interaction similarly shows that meaningful understanding requires grounding explanations in the user's context rather than relying on generic text-only processing.[41]

LLMs with controllable outputs can modulate formality and structure to scaffold understanding without oversimplifying legal concepts. Evidence from HCI indicates that linguistic alignment reduces perceived cognitive load, enhances trust, and improves interaction quality.[42] Legal semiotics and HCI research likewise show that comprehension improves when systems mirror users' cognitive models and vernacular expressions.[43] Findings from legal design practice reinforce this point: conversational, adaptive language is perceived as more supportive and is particularly valuable in contexts of legal uncertainty.[44] Such linguistic adaptation is central to addressing testimonial and hermeneutical injustice.[45]

ii) Explainability and Traceability.

A second epistemic risk arises when LLMs deliver fluent but unverifiable outputs, obscuring the basis on which legal pathways are recommended. This concern aligns with the European High-Level Expert Group on AI, which emphasises that explainability must combine technical clarity with user-accessible reasoning.[46] This principle therefore requires systems to support users in understanding how outputs were generated, why specific legal options were suggested, and which normative assumptions are embedded in those suggestions.[47]

Technically, this calls for layered architectures incorporating retrieval-augmented generation (RAG), transparent source attribution, explicit

[39] HG Widdowson, *Defining Issues in English Language Teaching* (Oxford University Press 2003); P Ewick and SS Silbey, *The Common Place of Law: Stories from Everyday Life* (University of Chicago Press 1998).

[40] TA van Dijk, 'Discourse, Context and Cognition' (2006) 8(1) Discourse Studies 159–177 <https://doi.org/10.1177/1461445606059565>.

[41] K Beuls, P Van Eecke, 'Humans Learn Language from Situated Communicative Interactions. What about Machines?' (2024) 50 Computational Linguistics 1277.

[42] Y Huang and others, 'Humans Linguistically Align to Their Conversational Partners, and Language Models Should Too' (ICML In-Context Learning Workshop 2024).

[43] BS Jackson, *Semiotics and Legal Theory* (Routledge & Kegan Paul 1985); R Kevelson, *The Law as a System of Signs* (Plenum Press 1988).

[44] MD Hagan, 'A Human-Centered Design Approach to Access to Justice: Generating New Prototypes and Hypotheses for Intervention to Make Courts User-Friendly' (2018) 6(2) Indiana Journal of Law and Social Equality 199, esp 200, 221.

[45] M Fricker, *Epistemic Injustice: Power and the Ethics of Knowing* (Oxford University Press 2007); RL Sandefur, 'Accessing Justice in the Contemporary USA: Findings from the Community Needs and Services Study' (2014) *American Bar Foundation Research Paper* 1 <https://www.americanbarfoundation.org> accessed 5 November 2025.

[46] High-Level Expert Group on AI, *Ethics Guidelines for Trustworthy AI* (European Commission 2019).

[47] H Surden, 'Artificial Intelligence and Law: An Overview' (2021) 37 Georgia State University Law Review 1305.

explanations of rule application, and visible indicators of uncertainty.[48] Wachter et al.[49] propose counterfactual explanations as a cognitively tractable way of fulfilling transparency duties under the GDPR without exposing internal model logic. Complementary legal-informatics work highlights the importance of algorithmic audits, documentation, and data protection by design.[50] These mechanisms resonate with procedural fairness norms - such as reason-giving and contestability - long recognised in administrative law.[51] Under the European AI Act, systems used in legal domains fall under high-risk classifications and must therefore provide audit logs, documentation, and traceable decision pathways.

iii) Participatory Infrastructure.

Epistemic accessibility depends not only on how systems communicate but also on whose knowledge they encode. This principle addresses epistemic capture, which occurs when institutional perspectives dominate system design at the expense of community-grounded understandings. Participatory design methods enable the integration of heterogeneous epistemic sources - including local practices, vernacular framings, and procedural norms - into training data, rule sets, and ontologies.[52] Co-design initiatives in legal tech and HCI show that practitioners and lay users can meaningfully shape procedural models and interaction logics.[53] Empirical studies of legal IR systems demonstrate similar benefits: collaborative development between lawyers and computer scientists leads to tools that better reflect domain-specific reasoning.[54]

Legal design patterns have been proposed as an approach for documenting "living practice" and structuring interaction across legal and technical domains,[55] reinforcing the idea that users are co-designers rather than passive

[48] T Gao and others, 'Enabling Large Language Models to Generate Text with Citations' in *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing* (Association for Computational Linguistics 2023) 6465–6488 <https://doi.org/10.18653/v1/2023.emnlp-main.398>; Z Ji and others, 'Survey of Hallucination in Natural Language Generation' (2023) 55 ACM Computing Surveys 1.

[49] S Wachter, B Mittelstadt, C Russell, 'Counterfactual Explanations without Opening the Black Box: Automated Decisions and the GDPR' (2017) 31 Harvard Journal of Law & Technology 841.

[50] B Casey, A Farhangi and R Vogl, 'Rethinking Explainable Machines: The GDPR's "Right to Explanation" Debate and the Rise of Algorithmic Audits in Enterprise' (2019) 34 Berkeley Technology Law Journal 143; JA Kroll and others, 'Accountable Algorithms' (2017) 165 University of Pennsylvania Law Review 633.

[51] TR Tyler, 'Procedural Justice, Legitimacy, and the Effective Rule of Law' (2003) 30 Crime and Justice 283.

[52] D Engel and F Munger, 'Sustaining Legal Empowerment through Community-Based Paralegalism' (2020) 54 Law & Society Review 755; P Casanovas, 'Coherence, Institutionalisation, and Ontology in the Legal Domain' (2016) 24 Artificial Intelligence and Law 231.

[53] AR Lodder and J Zeleznikow, 'Constructing Legal Knowledge Systems through Co-Design: Experiences from the Dutch Legal Aid Board' (ICAIL Visual Law Workshop 2011).

[54] F Delgado, S Barocas and K Levy, 'An Uncommon Task: Participatory Design in Legal AI' (2022) 6 *Proceedings of the ACM on Human-Computer Interaction* art 51.

[55] R Koulu, 'Living Law and Digital Technologies: Legal Design Patterns for Law's Places and Things' (2024) 51 Journal of Law and Society 442; Audrito D and Ferraris AF, 'Legal Design through Business Process Model and Notation (BPMN): A Digital Services Act Case-Study' in *Proceedings of the Joint Ontology Workshops 2023 Episode IX: The Quebec Summer of Ontology, co-located with FOIS 2023* (CEUR Workshop Proceedings vol 3637, CEUR-WS.org 2023).

recipients of technological solutions. Value Sensitive Design offers complementary methods for embedding stakeholder values such as fairness and transparency directly into system architectures,[56] while the design justice framework centres marginalised communities in the development of sociotechnical systems.[57] These approaches align with international governance frameworks - including CAHAI and UNESCO - that call for inclusive and culturally responsive AI design in public services.[58]

Taken together, these principles articulate a normative–technical agenda for legal AI that advances epistemic empowerment. They shift the focus from surface-level textual simplification to a broader re-engineering of the communicative, procedural, and institutional infrastructures through which legal meaning is mediated. Realising these principles requires commitments across system layers - from data curation and model alignment to user feedback loops and institutional oversight. In doing so, they operationalise the paper's central claim: that epistemic accessibility in legal AI is a socio-technical and normative imperative, not merely a matter of interface design.

6. Operationalising Epistemic Accessibility: DEUCE and CREA3.

This section examines how the design principles developed above can be translated into concrete implementation choices. Rather than presenting EU-funded projects as evidence of empirical effectiveness, it uses them as implementation cases: examples of how epistemic accessibility can be embedded into the architecture of legal technologies.

The analysis focuses on two complementary design logics. DEUCE illustrates traceable simplification: legal forms are made more intelligible through readability and difficulty assessment, expert and user validation, and interface features that connect simplified explanations to complete procedural materials. CREA3 illustrates grounded legal mediation: user narratives are translated into jurisdiction-sensitive legal guidance through source-grounded retrieval, explicit evidentiary traces, and bounded interaction.

Together, these cases show that epistemic support is not a single interface feature, nor merely a matter of plain language. It is distributed across several layers: the linguistic layer, where legal terminology and dense textual units are mediated; the procedural layer, where users are oriented within a legal pathway; the evidentiary layer, where outputs remain connected to identifiable sources; and the governance layer, where expert and user feedback constrain simplification and guidance. DEUCE and CREA3 therefore demonstrate the feasibility of designing legal AI systems as epistemic infrastructures: systems that do not simply deliver legal information, but structure the conditions under which users can understand, verify and act upon it.

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[56] B Friedman, DG Hendry, *Value Sensitive Design: Shaping Technology with Moral Imagination* (MIT Press 2019).

[57] S Costanza-Chock, *Design Justice: Community-Led Practices to Build the Worlds We Need* (MIT Press 2020).

[58] Council of Europe, Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law (CETS No 225, Vilnius, 5 September 2024) <https://rm.coe.int/1680afae3c>.

6.1 DEUCE: Traceable simplification and epistemic scaffolding in cross-border procedures.

The DEUCE project (Digitalising European Uncontested Claims Enforcement, GA n. 101138437) offers a concrete illustration of how epistemic-accessibility principles can be translated into the design of a user-facing legal interface. Its relevance for the present analysis does not lie simply in the use of generative language models, but in the way legal-linguistic difficulty is identified, tested and mediated through interface design. The project focuses on the European Payment Order and European Enforcement Order forms, which are formally standardised instruments but remain epistemically demanding for non-expert users. Their use requires the interpretation of legal terminology, procedural categories, jurisdictional references and the consequences of completing or opposing a claim. The discussion below is based on the public DEUCE Deliverable D3.3, which documents the readability assessment, simplification methodology, expert and user validation process, and interface design choices developed within the project.[59]

DEUCE first operationalises epistemic accessibility through a diagnostic layer. Rather than assuming that legal forms are inaccessible in a generic sense, the project identifies specific points of interpretive friction through readability and difficulty assessment. This analysis operates at both lexical and discourse level. At the lexical level, difficult legal and procedural terms are selected for clarification through definitions, synonyms or paraphrases. At the discourse level, complex textual units are assessed for possible reformulation while preserving the meaning and legally relevant information of the original text. This approach reflects the principle of situated communicative interaction: epistemic opacity is treated as something that emerges at concrete points in the user's procedural journey, rather than as a general property of legal language.

Second, DEUCE links simplification to validation. The simplified versions are not treated as self-evidently clearer or legally adequate. They are assessed through feedback from both domain experts and non-expert users, with attention to whether the simplified text is easier to understand, whether the instructions are easier to follow, whether the structure of the form is clearer, which parts remain difficult, and whether the simplified version preserves the legal meaning of the original. This validation step is important from the perspective of epistemic justice. Simplification can reduce cognitive burden, but it can also distort legal meaning if legally relevant distinctions are removed, weakened or flattened. DEUCE therefore treats accessibility as a controlled mediation process requiring legal, linguistic and experiential assessment.

Third, the interface design embeds this mediation process into a traceable user experience. The simplified text does not replace the complete legal-procedural material. Users can move between simplified and complete versions of the form, so that accessibility is offered as an additional explanatory layer rather than as a substitute for the legally relevant text.

[59] DEUCE Consortium, *Deliverable D3.3 – Semantic Processing and ML/DL Procedures. The Intelligent Interface Design* (2025).

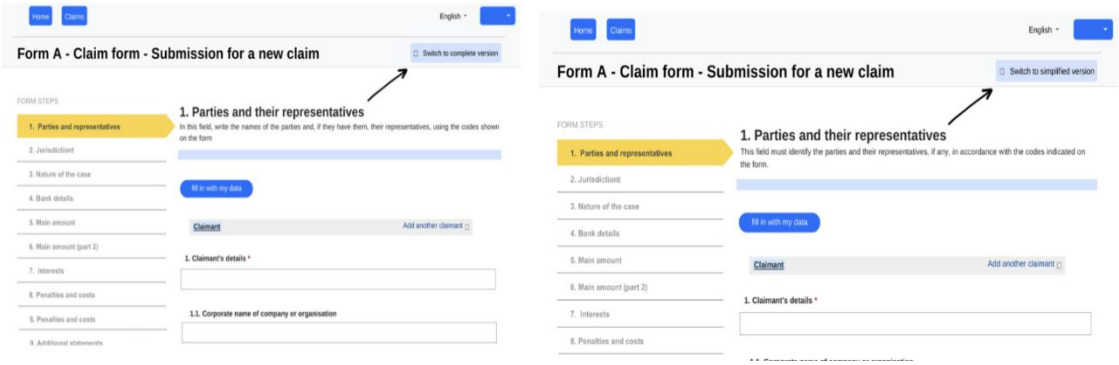


Fig. 1 Traceable simplification in the DEUCE interface[60]

This design choice responds directly to one of the risks identified in this paper: the possibility that AI-supported or simplified explanations become fluent but opaque. By preserving the connection between simplified and complete versions, the interface supports comprehension while allowing users to reconnect the explanation to the fuller legal-procedural formulation.

DEUCE further develops this logic through additional interface elements. Definitions and synonyms provide contextual support for difficult legal terminology; contextual PDF materials connect the user to relevant procedural documents; expandable explanatory boxes provide further information without overloading the main text; and progress indicators help users understand where they are within the procedural sequence.

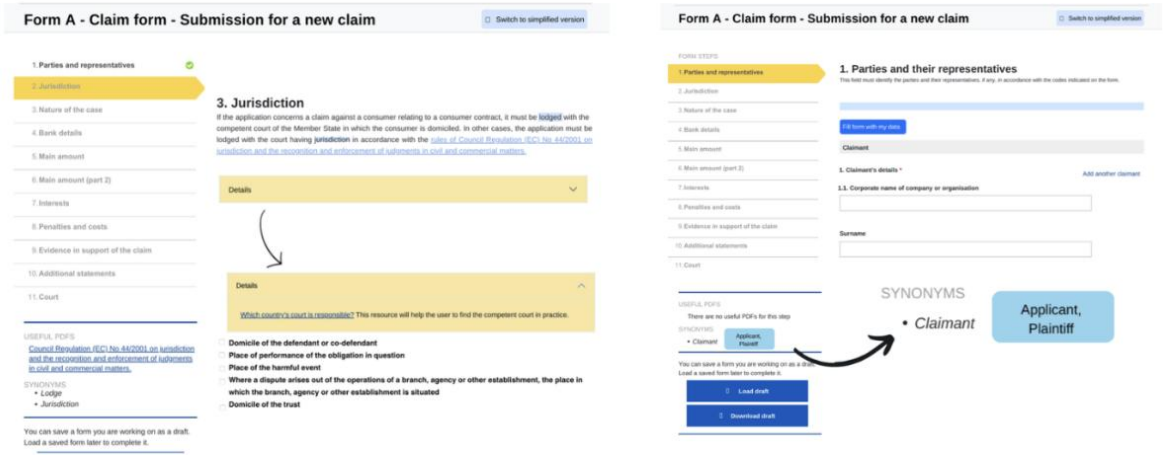


Fig. 2 Layered epistemic scaffolding in the DEUCE interface[61]

[60] The interface allows users to move between simplified and complete versions of the form text. The simplified version supports comprehension, while the possibility of returning to the complete version preserves traceability to the fuller legal-procedural formulation.

[61] The interface combines contextual terminology support, embedded procedural materials, expandable explanations and progress visualisation. These elements support legal comprehension while preserving orientation within the procedural sequence.

These features show that epistemic accessibility is not reducible to readability. It also depends on the architecture of the interface, the availability of layered explanations, the preservation of procedural context and the user's ability to orient themselves within the legal process. DEUCE therefore partially operationalises the three design principles proposed above. Readability and difficulty assessment instantiate situated communicative interaction by identifying where users encounter linguistic and procedural barriers. Expert and non-expert feedback instantiate participatory validation by treating simplification as a legally and experientially tested intervention. The interface features instantiate explainability and traceability by linking simplified explanations to complete texts, contextual terminology support and procedural materials.

DEUCE should therefore be understood as an implementation case of epistemic scaffolding in legal technology. It does not provide empirical proof that LLM-supported interfaces improve access-to-justice outcomes. Rather, it demonstrates how epistemic-accessibility principles can be translated into specific technical and organisational choices: diagnosing interpretive friction, validating simplified content and embedding layered explanatory resources into a traceable procedural interface.

6.2 CREA3: Grounded and jurisdiction-sensitive legal mediation in family-law disputes.

The CREA3 project (Conflict Resolution with Equitative Algorithms, Grant Agreement No. 101160564) provides a second implementation case, complementary to DEUCE. Whereas DEUCE illustrates traceable simplification of legal forms, CREA3 illustrates grounded legal mediation: the use of structured legal knowledge, retrieval mechanisms and interface safeguards to support users in translating concrete family-law questions into legally relevant and jurisdiction-sensitive guidance. The discussion below draws on the CREA3 architecture and knowledge-base deliverables, which document the platform design, knowledge-base structure and retrieval logic underpinning the CREA3 Legal Assistant.[62]

CREA3 addresses a distinct epistemic problem. In family-law disputes concerning asset division in divorce and inheritance proceedings, users often do not begin from legal categories. They begin from factual narratives, practical concerns and incomplete assumptions about the relevance of marital regime, children, succession rules, property status or jurisdiction. The epistemic challenge is therefore not only to simplify legal information, but to connect user narratives to the legal categories and procedural contexts through which the dispute becomes intelligible. CREA3 responds to this challenge across six European jurisdictions: Belgium, Croatia, Estonia, Italy, Lithuania and Slovenia.

The system operationalises situated communicative interaction through a structured legal knowledge base. Legal materials are organised through an ontology covering inheritance and divorce, country-specific laws, past legal cases and legislation. The knowledge base is enriched with metadata

[62] CREA3 Consortium, *Deliverable D3.2 – Report on System Architecture, Design and Development* (2026); CREA3 Consortium, *Deliverable D4.1 – Knowledge Base Samples* (2025).

concerning jurisdiction, legal topic, type of proceeding, marital regime, presence of children, succession characteristics, duration of marriage and other legally relevant variables. This structure allows the system to retrieve materials that correspond to the user's factual and jurisdictional context, rather than treating legal guidance as a generic response to a generic query.

CREA3 also operationalises explainability and traceability through its Retrieval-Augmented Generation architecture. User questions are transformed into retrieval queries against a curated vector store containing legislation, civil codes, case-law materials and FAQs. The language model does not generate guidance in isolation; it receives retrieved passages from the knowledge base and produces an answer grounded in those materials. The interface reinforces this architecture by exposing retrieved files, retrieved contexts and trace information to the user.

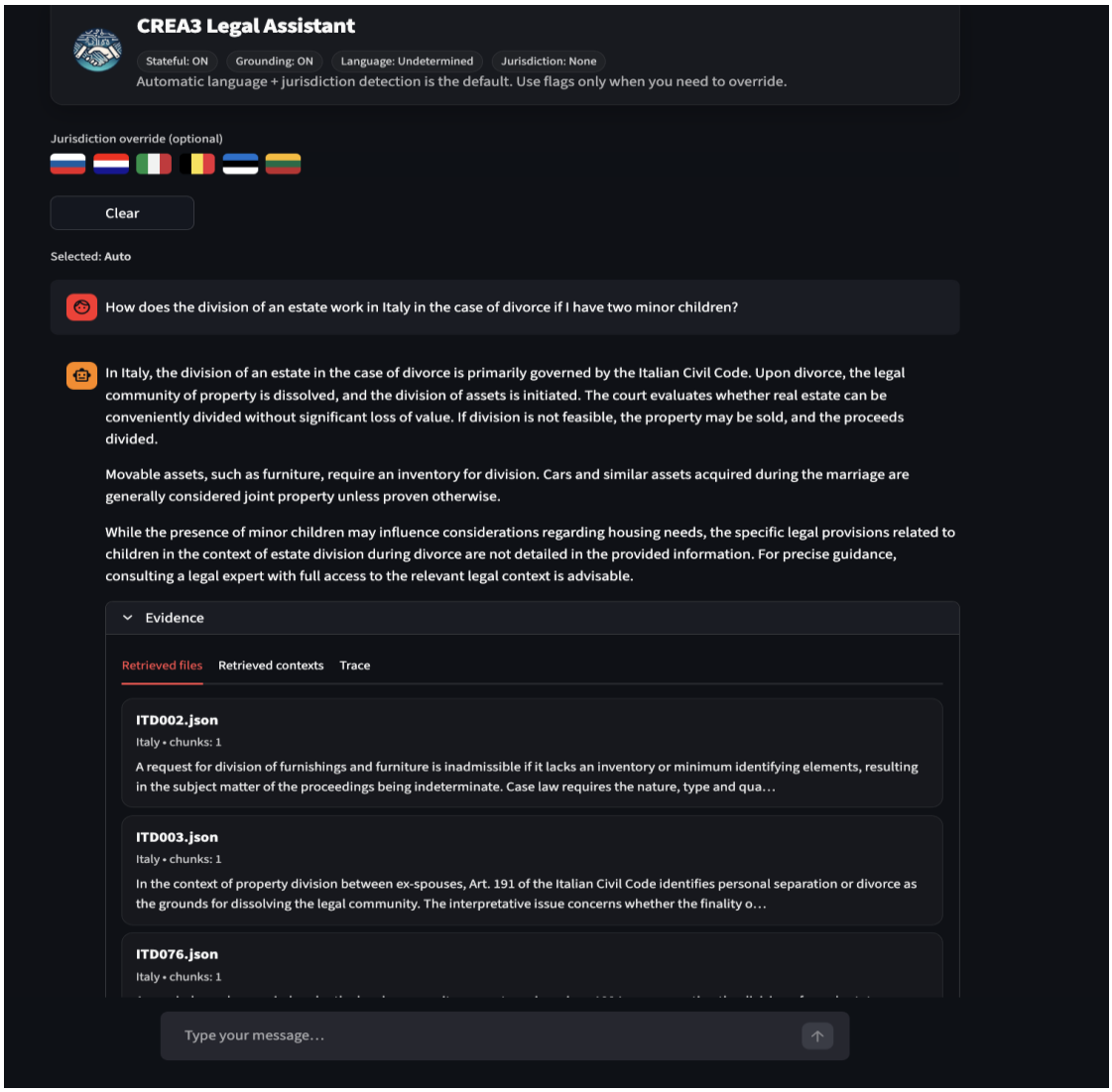


Fig. 3 Grounded and traceable legal guidance in the CREA3 Legal Assistant[63]

[63] The interface combines jurisdiction-sensitive guidance with source-grounded retrieval. Retrieved files, contextual passages and trace information make visible the evidentiary basis of

This design directly addresses one of the central risks identified in this paper: the production of fluent but opaque legal guidance. In CREA3, the user is not merely presented with a plausible legal explanation. The system makes visible the materials and retrieval path that support the answer. This does not eliminate the need for legal verification, nor does it transform the assistant into an adjudicative system. It does, however, make the mediation of legal meaning more inspectable and contestable.

The platform also incorporates procedural and accessibility-oriented safeguards. The architecture identifies different user categories, including private citizens, legal professionals and vulnerable users affected by cognitive, sensory, linguistic or technological barriers. It requires contextual help, tooltips, chatbot support, step-by-step guidance, progress indicators, simplified explanations and accessibility measures aligned with WCAG 2.1 Level AA. These elements are relevant because epistemic accessibility depends not only on the accuracy of legal content, but also on the conditions under which users encounter, process and act upon that content.

CREA3 should therefore be understood as a partial implementation of grounded legal mediation. Its value lies not in replacing legal professionals, predicting legally binding outcomes or automating dispute resolution. Rather, it lies in structuring the interaction between user narratives, jurisdiction-specific legal knowledge and procedural pathways. By combining ontology-based legal modelling, metadata-enriched retrieval, source-grounded generation and accessible interaction design, CREA3 illustrates how legal AI systems can reduce epistemic opacity while preserving the need for legal verification, contextual judgment and institutional accountability.

7. Conclusion.

This paper analysed how large language models reshape epistemic access to law in digitally mediated dispute resolution. It argued that the most persistent obstacles to access to justice are not informational in nature but epistemic: users must interpret legal categories, navigate procedural structures, and assess the implications of their choices under conditions of asymmetry. Digital interfaces and LLM-based systems mediate these conditions by encoding linguistic, procedural, and semiotic assumptions into their design, thereby structuring how legal meaning is produced and made accessible.

The analysis showed that LLMs amplify this dynamic. Their capacity to reformulate and contextualise legal content creates opportunities for interpretive scaffolding, yet their architectural properties - probabilistic generation, opaque provenance, and the reproduction of dominant legal framings - introduce significant epistemic risks. Addressing these risks requires moving beyond textual simplification toward a socio-technical understanding of epistemic accessibility.

To this end, the paper proposed three interdependent design principles: situated linguistic adaptation, explainability and traceability, and participatory

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the generated response, reducing the opacity typically associated with generative legal assistance systems.

infrastructure. These principles articulate conditions under which generative systems can support rather than constrain interpretive agency. Their feasibility was illustrated through ongoing EU-funded initiatives - SCAN2, DEUCE, and CREA3 - which embed contextualisation, transparency, and co-design into legal information infrastructures.

The contribution is conceptual and normative. It develops a socio-technical account of epistemic accessibility tailored to AI-mediated legal environments and offers a design-oriented framework for mitigating hermeneutical and procedural asymmetries. Future work should examine how these principles operate in deployment, how they interact with institutional constraints and user practices, and how emerging regulatory regimes - particularly under the EU AI Act - shape their implementation. LLMs must therefore be understood not as neutral tools but as epistemic infrastructures whose design choices influence how individuals encounter and make sense of law. Ensuring epistemic accessibility requires intentional architectures that sustain understanding, contestability, and agency across diverse legal contexts.