Explanatory Visualization with LLMs for Employment Law

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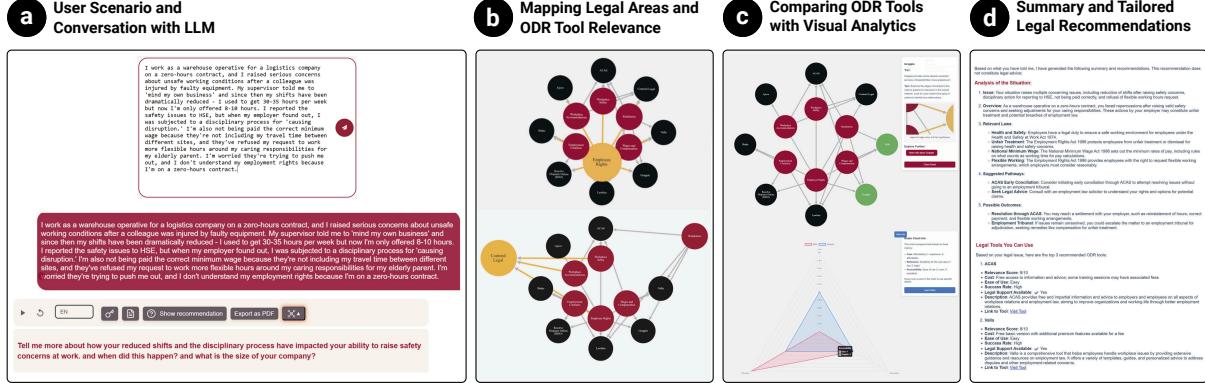Bangor University

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Figure 1: This storyboard illustrates how a typical user would interact with EmployODR, a system to enhance access to Online Dispute Resolution (ODR) tools specifically in employment law. The system initially presents a chat interface familiar to non-experts (a), where a user can explain the employment issue they are facing. The system then responds with targeted follow-up questions and can provide visual explanations of the system's legal reasoning (b). As the user provides more context with further responses to questions powered by our Retrieval-Augmented Generation (RAG) pipeline, the visualizations will automatically update. The network diagram links the user's issue to categories within employment law and maps these to relevant ODR tools. Color-coded nodes and arrows demonstrate how the user's input is processed. The user can further decide to explore different ODR tool options through the interactive charts. Our visualization system can help a user to compare key factors (c) such as cost, relevance, and accessibility, helping them make more informed choices. All the while the chat session remains available for further questions. Finally, the system generates a textual legal summary containing possible next steps and a ranked list of ODR tools that may be most relevant to their issue (d). The user receives actionable information with links and explanations for each option.

ABSTRACT

This paper presents EmployODR, an AI-enhanced online tool to help improve access to employment law dispute resolution. The system combines a chat bot powered by a Large Language Model (LLM) with explanatory visualizations that aim to communicate the system's reasoning. Our tool integrates GPT-3.5 Turbo with structured legal data through a Retrieval-Augmented Generation (RAG) pipeline. The system guides users through complex employment law scenarios using network maps visualized using node-link diagrams, and plain-language summaries. Through our ongoing research, an early framework has emerged that we then apply for scalable AI-driven legal visualization that we hope can aid in bridging the gap between complex legal procedures and public accessibility, placing explainable AI as an essential component for democratizing access to justice. This work supports the developing integration of legal technology and explainable AI by exploring how visualization principles can promote transparency in AI-driven legal decision-making systems, aiming to formulate methodologies applicable across various legal domains to enhance public access to justice.

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Index Terms: Legal Visualization, Online Dispute Resolution.

1 INTRODUCTION

Access to justice in employment law remains a challenge for individuals without legal training who must navigate complex procedures and disconnected online resources [4]. The rapid growth of Online Dispute Resolution (ODR) tools and the integration of Artificial Intelligence (AI) into legal services have created new opportunities for this field, but also new barriers: users often struggle to identify relevant pathways, understand their rights, and select appropriate tools for their situation [1]. Recent government initiatives in the UK have emphasized the need for technology-driven solutions that are accurate, accessible and also explainable [3]. However, most existing ODR platforms focus on the transactional efficiency of AI, offering limited support for user comprehension or for mapping the nuanced pathways required in legal redress. The justice gap keeps growing, with non-experts frequently overwhelmed by legal jargon, procedural ambiguity, and a lack of plain-language guidance.

To address these challenges, we present **EmployODR**, an AI-enhanced visualization system for employment law dispute resolution tools recommendation (see Figure 1). This work is part of a wider body of research, the Regulators Pioneer Fund 3 (RPF3) project [2], led by the Solicitors Regulation Authority (SRA), along with the England and Wales Law Society and a charity, the Access to Justice Foundation (ATJF). The project focuses on "Solving legal issues through technology" exploring how ODR can help tackle unmet legal need of individuals, consumers, and businesses. Our approach builds directly on the principles of explanatory journeys and pathway visualization established by the Artemus project [5] and in

this work we aim to begin exploring its main limitation, the curation of its knowledge base. EmployODR combines a conversational AI front-end powered by a Large Language Model (LLM) and interactive explanatory visualizations of the AI's reasoning. The tool generates a summary of the legal problem it has identified and offers tailored ODR tool recommendations.
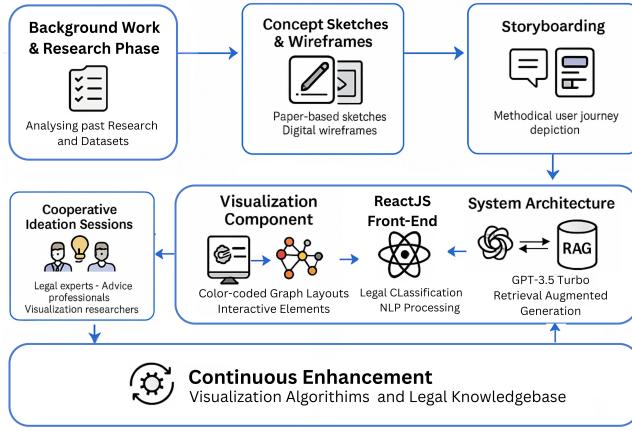
2 EMPLOYODR SYSTEM OVERVIEW

Figure 2: System Overview Flowchart for EmployODR: Background research on existing legal visualization systems and ODR tools informed the conceptualization and storyboarding of our solution. Once prototyped, we consulted legal experts and visualization researchers to continually enhance the interface and legal responses.

In our attempts to determine the criteria for explainability in employment law scenarios, our method (see Figure 2) started with a background study. This included looking at previous studies on legal technology, visual law, and access to justice. We looked at current employment law help services and how people usually get and give legal assistance and information online. This process enabled us to outline principal problem areas and clarify the user requirements we sought to address. Captured in our research phase were early summaries that focused on displaying how users can perceive or understand legal issues and what visual metaphors might successfully convey complex legal relationships and procedural paths.

Based on what we learned from our research, we made low-fidelity paper sketches and digital wireframes with tools like Balsamiq and JustInMind. These prototypes are focused on how people interact with the system and how the interface should be set up. We experimented with different legal metaphors and user interface models at this stage, focusing on making them clear, easy to use, and less mentally taxing. Through a storyboarding process, the wireframes were improved iteratively. Each storyboard frame showed an important decision point in the user's journey. The storyboarding set emphasis on clearly defining the problem at first and visually exploring user scenarios, with an increased emphasis on giving practical legal information and making it clear in a step by step way for a lay user or legal expert to understand. This helped ensure the information presented was based on personalized, real legal processes.

ReactJS was used to build the front end, which helped create a robust and user-friendly interface. EmployODR uses OpenAI's GPT 3.5 Turbo Large Language Model alongside a bespoke legal classification module that was integrated to process user queries, classify them within legal categories, and feed structured outputs into the visualization component. The aforementioned ensured that relevant laws were identified and that the visuals responded in real-time (see Figure 2). Our current visualization engine renders se-

mantic clustering and color-coded node-link diagrams. Red nodes in the final visual output represent legal concepts, black nodes indicate ODR tools, and edges show the procedural routes.

The UI has interactive features including a radar chart and panels with contextual information that allow users to compare features of the ODR tools they might choose to use. Once the prototype was created, we had a number of brainstorming sessions with legal experts including employment law solicitors, advice specialists, and visualization researchers. These workshops focused on refining how users perceive and interact with complex legal information. Feedback from this process was used to make the system easier to navigate and fine-tune information layering methods like progressive disclosure.

3 SUMMARY AND FUTURE WORK

EmployODR is still under development, and we intend to a conduct formal user to verify whether our system can effectively communicate legal processes and the underlying AI reasoning to lay users and legal experts alike. Our prototype currently offers: (1) a dynamic pathway map that shows the system's AI reasoning and how legal issues are classified, (2) comparative analysis of resolution tools with relevance scoring, and (3) context-aware detail disclosure providing the user with control and information depth. The design enables users to verify recommendation rationale through on-demand explanations of decisions, addressing an important challenge of trustworthy AI implementation in legal contexts. Our system illustrates how technical explainability and user-centered design could be combined in public-facing legal AI systems. Future work will improve on our visualization approach, and extend our approach to additional legal domains. Current limitations we note include an accuracy gap in common law scenarios and the need for continued human curation of legal data, requiring further development of our RAG system. Inspired by the visualization approach used in Artemus [5] we aim to further explore how LLMs can assist in the creation of legal summaries and explanatory visualizations for employment law (with a view to supporting more legal domains in future), integrating explainable AI techniques for better transparency.

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