Online Dispute Resolution: Ethics and Governance

John Zelenikow[1,2]

[1]*Research Unit of Excellence Digital Society: Security and Protection of Rights, University of Granada, Spain*
[2]*Law and Technology Group, Law School, La Trobe University, Australia*

Abstract

In this article we survey the history of Intelligent Online Dispute Resolution Systems. This leads to the development of a six-step module for building systems that can be used by non-professionals. The use of Machine Learning to build such systems, and underlying ethics and governance problems are discussed.

Keywords

Online Dispute Resolution, Artificial Intelligence, Machine Learning, Ethics, Governance

1. Introduction

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The pioneers of ODR, saw it as a futuristic idea that could cope with ecommerce disputes [1]. Despite a number of research papers being produced, very few practical systems were widely used prior to 2010. Only recently have legal communities recognised the benefits of ODR for helping resolve far more than ecommerce disputes.

Amongst the reasons for using both ADR and ODR are:

1. The time taken to reach judgements in trials;
2. The cost of resorting to traditional legal recourse – especially litigation;
3. ADR and ODR focus upon providing users with the outcomes they desire rather than seeking judicially far outcomes; and
4. ODR can be particularly efficient for low-cost high volume transactional disputesAn example of bulleted list is as following.

The 1970s were the decade where ADR gained traction, The Pound Conference of April 9-11 1976 was organised by then US Supreme Court Chief Justice Warren Burger to investigate developing alternative forms of justice. Chief amongst the ideas presented were Frank Sander's notion of the Multidoor Courthouse [2]. Resulting from Pound Conference was the Harvard Program on Negotiation and the publication of Fisher and Ury's 'Getting to Yes' book [3] and Howard Raiffa's 'the Art and Science of Negotiation' [4].

The 1980s saw the development of what was the considered a number of futuristic expert systems which could model legalistic decision making. Such systems included TAXMAN (McCarty 1976) [5]. The British Nationality Act as a Logic Program [6] and the Latent Damage Adviser [7].

It was not until the early 1990s that we saw and extensive development of the World Wide Web. Initial proposals for the development of ODR followed soon thereafter. Initially ODR developer focussed upon the resolution of E-Commerce disputes. They argued that disputes which originated online could be resolved digitally and that Ecommerce users would not face difficulties using Information Technology. Thus, in the decade following 2000, we saw the development of ODR for E-Commerce.

The 2010s have been the first decade in which we have seen the development of practical widely usable systems. Examples include Rechtwijzer (Netherlands) and British Columbia Civil Resolution Tribunal. The use of ODR has now moved far beyond Ecommerce. It is finally being used for non-financial disputes. Examples include the work of Ethan Katsh and Orna Rabinovich-Einy [8] and the access to justice work being performed at Kent Law School.

2. The Importance of User Centric Computing for ODR

Over the past thirty years there has been a growing trend for disputants to engage in legal conflict without professional support [9]. Disputants who represent themselves rather than use lawyers are known as Self-Represented Litigants (SRLs). Many SRLs use ODR for debt, employment, and family relationships conflicts without seeking professional help. Zeleznikow argues that ODR can help SRLs [10].

However, if non-professional SRLs hope to use ODR, then associated software must be user friendly. Human-centered design focuses on users' experiences to develop solutions that are both experimental and iterative.

Margaret Hagan identifies seven key recommendations for courts and Self-Help Centers to improve efficiency and usability [11]:

1. Courts must coordinate Navigable Pathways which help people understand the whole sequence of events that will face them during their legal processes and more effectively assist them through that process.
2. People need more robust and user-friendly tools to navigate through the courts.
3. People need warm and efficient welcome experiences to encourage them to follow through with the procedures.
4. Paperwork should be redesigned to be more visually clear, prioritized, and manageable.
5. Pre-court appearances - the development of more online court tools that can help people prep for their court visits and get their tasks done correctly.
6. Better work-stations and materials in courts to prepare litigants for their appearances.
7. The court system needs to develop a culture of usability, testing, and feedback.

Richard Susskind discusses two tiers of online courts [12]:

- **The first tier uses rule-based and case-based systems**—such as Rechtwijzer and the British Columbia Civil Resolution Tribunal, and compliance systems (such as Robodebt and driving regulations). Such systems are now routinely used and whilst they use the first generation of AI, they are often not viewed as AI

- **In the second tier, Susskind imagines a machine learning system helping parties by predicting the likely outcome of their case were it to come before a human judge** – one example is our Split-Up system (see later) which advises upon the distribution of marital property following divorce in Australia, by providing appropriate BATNAs.

Roberge and Fraser [13] argue that an optimal ODR platform, from a commercial standpoint, will provide guides and flowcharts, an adaptive question and answer interface, transparent ethical commitments, outcome predictions, an expedited procedure leading to an enforceable outcome, a proportional cost model, a mediation process, and a range of communications.

3. Machine Learning and Legal Data

Paragraph text. Rajkomar et al. argue that a central challenge in building a machine-learning model is assembling a representative, diverse data set [14]. Legal data is not as precise as medical data, and often needs to be transformed so that it can be gainfully used.

Stevens classified data into nominal, ordinal, interval, and ratio types [15]. There is much more and cleaner medical data than there is for legal data. Further most legal data is nominal (free-text data) whilst most medical data is of the ratio type. Thus, the use of Machine Learning in law will never model its use in medicine.

Family law is perhaps the legal domain most appropriate for the use of information technology because it has more data than other domains and most clients cannot afford expensive, time-consuming litigation.

Branting's Protection Order Advisor (2000) had its genesis in the decision by the Idaho Supreme Court Technology Committee to fund a demonstration project to evaluate the applicability of AI to judicial administration [16]. Several different domains for a demonstration project were considered, including sentencing, pre-trial release, child support, and protection order applications.

The Technology Committee selected protection order application assistance because the inability to offer advice to pro se protection order applicants was distressing to staff in Idaho courts. It relieved court staff of the painful choice between providing unauthorized legal advice and ignoring the needs of domestic violence.

We now discuss a variety of systems that use AI to support ODR. From these systems we hope to develop a methodology for developing ODR systems. "AI" used by current legal tech companies tends to be rule-based or case-based reasoning, with an aim toward eventually including machine learning.

The British Columbia Civil Resolution Tribunal (CRT) [17] has as its goal being:

1. Timely

2. Flexible

3. Accessible

4. Affordable

5. Efficient

It diagnoses the dispute presented to it and provides legal information and tools such as customized letter templates. If the initial provision of advice through the rule-based Solution Explorer (essentially advice about BATNAs and Bargaining in the Shadow of the Law) does not resolve the conflict, applicants can use the CRT to support dispute resolution.

Once the user has submitted the appropriate application forms and the application has been accepted, the disputants can enter a secure and confidential negotiation platform, where the disputants can attempt, without external help, to resolve the dispute. If this action fails, a facilitator or mediator can be employed to help resolve the conflict. When desirable, agreements can be turned into enforceable orders. If mediation, negotiation or facilitation does not resolve the dispute, an independent member of the Civil Resolution Tribunal will make a ruling about the case.

Currently, the British Columbia Civil Resolution Tribunal deals with the following five categories of cases:

Table 1

Type of dispute	Maximum Vale ($C)
Housing	5,000
Motor Injuries	50,000
Owners corporation (also called condominiums or strata titles)	Any amount
Small Claims	5,000
Cooperative associations and societies	Any amount

In the future, it is planned that the Civil Resolution Tribunal will be extended to further domains. For these five domains, potential litigants are restricted to only using the Civil Resolution Tribunal. Paper-based solutions are unavailable. This can potentially lead to major problems for the digitally disadvantaged. To deal with this dilemma, potential litigants can receive assistance in accessing the internet.

We believe that the major reason for the significant success of the Civil Resolution Tribunal, is that British Columbia government has decreed that the British Columbia Civil Resolution is the only forum in which residents can attempt to resolve those disputes listed above.

The Dutch platform Rechtwijzer (now called JUSTICE 42) was designed for separating couples [18]. The developers viewed the aim of the system as 'to empower citizens to solve their problems by themselves or together with his or her partner. If necessary, it refers people to the assistance of experts.'

Couples pay €100 for access to the Rechtwijzer system. The system commences by asking each partner for personal information such as their age, education and income, as well as their priorities in the dispute such as whether they want the children to live with only one parent or part time with each and other relevant preferences. The Rechtwijzer platform has 1. a diagnosis phase; 2. an intake phase for the initiating party; and then 3. an intake phase for the responding party.

Following the completion of the intake process, the parties are encouraged to commence working on agreements on those issues that occur in every separation. These may include a. future communication channels; b. issues related to child welfare; c property issues (including housing, money and debts); and d. child support and spousal maintenance.

The prevalent dispute resolution model in Rechtwijzer is integrative negotiation—focussing upon the childrens' and parents' interests rather than haggling about rights. Nevertheless, the ex-partners are informed of relevant processes—such as those for dividing property, child support and standard arrangements for visiting rights. This allows the disputants to agree based on informed consent, and essentially allows the parties to Bargain in the Shadow of the Law.

Final Agreements are reviewed by an independent lawyer. In the situation where the solutions proposed by the Rechtwijzer system are not accepted by the couple, the disputants are encouraged to request a mediator (this step costs an additional €360), or ask for a binding decision to be made by an adjudicator. Until the step where adjudication is requested, the use of the Rechtwijzer system is voluntary and non-binding.

The initial goal of the Rechtwijzer developers was to have the system as self-financing, primarily through user contributions. Sadly, this has not occurred, primarily for commercial reasons unrelated to the quality of the system.

Domestic and Family Violence apps should be used as part of a triaging system to ensure timely action to protect potential victims. ODR systems also have capacity to incorporate triaging to determine which problems require urgent action.

For example, systems should build in "tripwires" based on answers to questions or evidence gathered through GPS (e.g., stalking) to dispatch assistance. Triaging is also required in other legal domains. Examples might include when urgent action is required in the case of child abduction or with regard to the granting of bail. It is important for triaging to be available to initiate and expedite action in high-risk cases, leading to a reduced risk to the community. The significance of timely, relevant advice is vital.

4. Some Family Dispute Resolution Tools

CoParenter helps separating, divorced, and never-married parents make and manage co-parenting responsibilities, create court-ready parenting and holiday plans, resolve disputes, and make more informed, child-centric decisions that save them time and money and keep them out of court.[1] Integrated ODR facilitates online negotiation and mediation and adds a means for collaboration among various parties over a long period of time. The platform allows co-parents to communicate, track scheduling, and manage responsibilities A large part of the app's features centre on communication: secure, time-stamped messaging; records of child exchanges; on-demand mediation to make decisions about cost splitting; and a synced calendar. CoParenter is a "rule-based" system set up to take parents step-by-step through the process of creating a plan, asking them yes or no questions about what they want to do next, their children's names, and other relevant information.

Split-Up uses a predictive algorithm that can be used to determine a party's BATNA going into a negotiation for a discussion [19]. The system was developed using 103 commonplace (or

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[1]https://coparenter.com (last visited January 29, 2023).

unreported) family court cases to develop a predictive analytic for how future assets would be divided between couples in the event of a divorce. Couples input shared costs, labor performed, division of household duties, future job prospects, and more, which the algorithm uses to predict division of assets. Despite using Machine Learning, the development of Split-Up involved much conceptual modelling. 25 years later, the theoretical principles behind AI software have not changed. But computer software and hardware are much less expensive, and data can be much more easily stored. Portable and the Legal Services Commission of South Australia designed and developed Amica , which emulates Split-Up.

In the 25 years since Stranieri et al developed their pioneering ML legal system Split-Up [19], the solutions they developed to relevant problems are similar to today's issues:

- What data do we choose?—In Split-Up we chose unreported commonplace cases from the Melbourne Registry of the Family Court of Australia. In 1995, neural networks were slow, expensive in computing cost and took much hard disc space – today we can use many more cases, if we can find them.

- How do we check for biases in the data?—in RBR and CBR, due to transparency, bias is evident. In ML cases in the training set can lead to bias - In Split-Up we eliminated cases that lead to no results or results that are unfair. This requires human intervention—we also argue that when using ML to build legal decision support systems we need hybrid (together with RBR and/or CBR) systems rather than pure ML systems.

- How do we clean and transform the data?—In Split-Up we converted 103 free text judgement into a database. PhD students (not lawyers) conducted the conversions. We rejected cases that stopped our neural networks from learning. Family Court of Australia judges later told us that the cases we rejected were indeed by a rogue judge whose decisions were often in contradiction with those of other judges.

- How do we provide explanation?—in ML (except for decision trees which essentially learn rules) decisions are made from black boxes with no readily available explanations - In Split-Up we rationalised an explanation of the answer – once we were confident of the answer, we used Toulmin's (1958) theory of argumentation to provide explanations, modelling the way FCA judges did so [20]—much legal theory says judges make a decision which they justify instead of rationally working their way up a tree of arguments i.e. top-down rather than bottom-up reasoning.

- How do we evaluate the outcomes? – When using a Machine Learning black box, we want to feel fairly confident that the results are valid—In Split-Up we used the evaluation theory of Reich and Barai [21].

Our Family Wizard offers tools to parents for scheduling, tracking, reimbursement requests/payments, communication, and creating logs of the communication. It emphasises effective communication and allows parents to create third party accounts for others they want to be able to join in, such as their therapists. Parents can use Our Family Wizard to create a shared calendar, securely message on the app, check-in at various locations, and easily share payment obligations. The app offers case management, the ability to view client activity, and access to easily downloadable client records.

Family Winner is a family law support system that uses a variety of AI and game theory techniques as developed by John Nash [22] to help structure the mediation process and give

parties an idea of possible trade-offs . The system can also be used in other types of disputes, calculating results strongly resembling eventual outcomes.

The system is asked if the issues can be resolved in the map's current form and will allocate the issue as desired by the parties if so. If not, the user is asked to break down the least contentious issue until they find sub-issues on which agreement can be attained. The system then will then mathematically calculate which issue to give to each party, maximizing values and thus satisfaction to clients.

Agreement Technologies are computer systems in which autonomous software agents negotiate with one another with the aim of reaching mutually acceptable agreements. They provide for an interaction mechanism that allows for agreements to be established and executed. More sophisticated agreement technologies may use AI to pre-populate documents and provide standardized contracts based on party needs. The software can review parties' previous documents and learn to identify essential aspects in light of data observed. AI can also be used to flag potentially problematic terms, recognizing changes that should be made based on context. Examples include Lawyaw, Onit and LinklSquares [23].

5. How we envisage the ideal ODR System

We have examined ODR tools that somehow incorporate data analytics, algorithms, and/or AI. Our examination leads us to believe that a truly helpful and holistic ODR program aimed to assist SRLs and others should have the capacity to provide the following processes – as part of a modular system.

It is modular in that all of the following modules are not necessary for every case. Still having the modules accessible will allow individuals to better navigate the legal system and find solutions to their legal problems. The ideal combination is a jigsaw puzzle combines:

1. Case Management: The ODR system should allow users to initiate the dispute by providing templates to enter information about the issues. It should then query users for appropriate data. Users should be able to initiate the conflict, continuously access the data, and be aware of timelines they need to meet, what documents are required at specific times, and the progress of the case.

2. Triaging: The ODR system should indicate which cases require immediate action and which cases provide less risks to litigants and can afford to be delayed. Non-professionals also may have difficulty in choosing the appropriate forum for their dispute. Thus, the ODR system should suggest immediate interventions where necessary and otherwise direct parties where their cases should be addressed and/or heard. Triaging systems are vital for initiating and expediting action in high-risk cases, leading to reduced risk to both the applicants and the community. The significance of timely, relevant advice is especially vital in cases of bail applications, child abduction, and domestic violence. Triaging systems are needed to protect the interests of at-risk individuals.

3. Advisory Tools: The ODR system should provide processes for reality testing. Relevant tools could include articles, BATNA advisory systems materials providing useful parenting

advice, calculators (such as those to advise upon tax and child support obligations), copies of legislation, reports of cases, and videos of desirable and undesirable behavior. Advisory Tools assist the disputants to enter the mediation/negotiation with the likely and best (the two are often different) outcomes. With our focus upon user-centric computing we need to consider how we can design advisory tools that SRLs (or indeed any disputants without professional advisors) can gainfully use. Are the legal concepts behind the use of these tools too difficult for amateurs to understand? How do we construct suitable user interfaces for such disputants?

4. Communication Tools: All current ODR systems provide communication tools to support some combination of arbitration, conciliation, facilitation, mediation, and negotiation. ODR tools also naturally provide for shuttle mediation This can be very effective where toxic relationships make it difficult for parties to reach agreement while in the same room, even if it is virtual. Such a system could provide a trace of the parties conduct during the dispute (e.g. Our Family Wizard).

5. Decision Support Tools: If the disputants still cannot resolve their conflict after receiving advice from advisory systems and substantial communications between the parties, then systems should incorporate computer programs that utilize AI and/or algorithms building on game theory to facilitate trade-offs. While professionals can provide significant advice regarding trade-offs, ODR systems should incorporate suitable decision support tools using advanced analytics. Properly developed and monitored advisory systems can provide each disputant, separately, with advice about appropriate options and the likely outcomes of their disputes. Such decision support tools have capacity to assist disputants during the mediation or negotiation in conducting the best possible trade-offs to obtain those issues that they most desire.

6. Drafting Tools: Once the parties to a dispute reach an in-principle settlement, it is important to provide computer software that assists in drafting acceptable agreements. Having technologies available to memorialize an agreement saves everyone time and stress. Indeed, it is problematic when parties back away from a concluded agreement under a guise of falsely claimed lack of memory. Thus, ODR systems should incorporate agreement technologies. Preparing agreements (such as parenting plans) that are acceptable to all parties is a complex task that is especially problematic for parties without expert (human or digital) support.

We are merely proposing further development of free or low-cost access to these 6 modules, understanding that not all individuals or cases need all six modules. The aspiration is that individuals, especially those that cannot afford access to attorneys, will have these modules available so that they can "mix and match" to pave the way for access to justice in their given situations.

6. Ethics and Governance in ODR

Ebner and Zeleznikow (2016) viewed the governance of ODR as the 'wild west' [24]. Neither of its constituent components, ADR or IT have strong governance models. They discuss:

- No-governance models;

- Self-governance models;

- Internal governance models; and

- External governance models.

Each has its pros and cons.

The European Ethical Charter on the use of AI in judicial systems and their environment, approved on 3-4 December 2018 by the European Commission for the Efficiency of Justice (CEPEJ) of the Council of Europe, describes the risks of the use of AI in this field. One regulation says that the outcomes of the proceedings involving ODR should be transparent. Another stresses the security of data. Others talk about quality and fairness.

All of these requirements are seemingly desirable. But many of them are contradictory, especially when applied to Artificial Intelligence. And the techniques to be used vary depending upon which forms of AI are used.

Rule-based reasoning and case-based reasoning are first generation forms of AI. Whilst they may not be what most non-professionals today think of AI, they are very useful for building systems for compliance and rules as code. The rules (or decision trees) and case retrieval are transparent and act as explanation.

European principles require transparency—the manner in which transparency is ensured depends on the form of Artificial Intelligence being used. For RBR it is the rules. For CBR it is the cases in the case-base and the retrieval algorithm. In ML the algorithms are essentially 'statistical black boxes. They report answers (or connections) without adequately explaining how theses answers are derived. Of major concern for transparency are:

1. How do these algorithms opérate – unlike for rule-based systems, we do not see the code?

2. How is the data chosen for the algorithms to learn?

3. Is the data in any way massaged so that the algorithms can appropriately derive conclusions from the data?

Security and Transparency are often opposing principles– If we make documents private, they will be more secure. Making data and knowledge freely available and transparent may leave it insecure and open to abuse. Quality of the data depends upon how the data is collected, transformed and analysed. Quality of the outcomes (essentially distributive justice) derived from 'clean and appropriate data' depends upon the appropriate design and use of rules and cases. Quality of the processes (procedural justice) relies upon the appropriate design of algorithms by the developers.

The most vexing question is whether systems are fair. Procedural fairness of rule-based systems is reasonably easy to evaluate: have the designers appropriately modelled the legislation. For CBR and ML the question is whether the cases and training set have been appropriately chosen and transformed. Judging distributive fairness is more complex and requires domain experts to evaluate a series of different outcomes.

7. Conclusions

There has not been enough attention paid to dispute system design, especially where the stakeholders do not have the incentive and power to provide the best system to address concerns with Access to Justice. System design must be human, user-centric, and provide access to remedies for SRLs. All six typographies described should be available, even if offered in a modular way so that no company needs to shoulder the burden of providing all six processes in one system.

Such development must abide by ethical guidelines, including vigilance regarding the use of AI and algorithms to ensure that SRLs are not left with "second class" justice. It is time to reimagine Access to Justice through the innovative use of technology, not simply to advance efficiency and corporate savings, but to empower SRLs in an often one-sided legal market.

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