

# A Process-Driven Tool to Support Online Dispute Resolution

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## ABSTRACT

This demonstration shows a prototype tool that projects an impression of how execution of a formally defined process will facilitate dispute resolution. Tool flexibility supports projecting the look and feel of a range of different processes, facilitating user evaluation of alternatives.

## Categories and Subject Descriptors

K.4.3 [Organizational Impacts]: Requirements elicitation, prototyping, process definition

## General Terms

Experimentation, Process, Dispute Resolution, Prototyping

## Keywords

Online Dispute Resolution, Process Technology, Participatory Design, Grievance Mediation

## 1. INTRODUCTION

As the size and complexity of modern society continue to grow, the potential for disputes among the various parties in society grow as well. Indeed, the novelty of internet-based interactions is creating new opportunities for disputes. All of this creates the need for new and more efficient approaches to the burgeoning number and variety of disputes. Fortunately, technology also seems to offer approaches to their more efficient resolution. The field of Online Dispute Resolution (ODR) is exploring ways in which computer and communication technologies can facilitate dispute resolution while also decreasing the degree of involvement of humans [1]. ODR has been rapidly accepted in the commercial sector. But in government, where the need for increased dispute resolution efficiency is no less, acceptance has, nevertheless, been slower. Our project is exploring the premise that ODR acceptance in government can be expedited by facilitating the active involvement of diverse stakeholder groups

in the consideration and evaluation of dispute resolution approaches. We suggest, further, that this can be done by involving these stakeholders in the active consideration of various ODR approaches.

Our project is a collaboration of the University of Massachusetts with the National Mediation Board (NMB), the U.S. government agency charged with resolution of all labor-management disputes in the U.S. transportation industries (principally airlines and railroads). NMB has been seeing a steady increase in the need to mediate disputes, without commensurate increases in human resources. They have been interested in incorporating ODR into their work, but their continued credibility as an honest broker requires that they actively involve all of their many and diverse stakeholders in consideration of how ODR might be incorporated into their work.

## 2. OUR APPROACH

We view dispute resolution as a process, and have hypothesized that process definition, analysis, and execution technologies can be used both to provide automated support for dispute resolution and to effectively engage diverse stakeholder communities in consideration of just how this automated support is to be exploited. In particular, we regard ODR as a family of processes for dispute resolution in which computer and communications capabilities function as active agents in the conduct of the process. Clearly there are many possible ways in which dispute resolution processes might be defined, and many ways in which computer and communication technologies might function as active agents in each. This suggests that there is a need for research aimed at determining which processes are most appropriate under which circumstances, and which technologies are to be incorporated in which ways for best effect.

The goal of our research project is to demonstrate that process technologies can be effective in supporting this research. Our initial research has focused on using our Little-JIL process definition language to define precisely the IBB processes that NMB has been using [2]. One goal of this work is to prepare the way for our process execution capabilities to be used to marshal computer and communications capabilities to facilitate NMB's work. But, first we propose to use these process technologies to involve the various NMB stakeholders in active consideration of the processes that should be used. We believe that if all stakeholders have been actively involved in defining a dispute

resolution process, then they are more likely to be receptive to the acceptance of the outcome of a dispute resolution, even if that outcome seems unfavorable. We suggest that it is key that stakeholders have the ability to help define the dispute resolution process, and that they have the ability to monitor the execution of the process, to be sure that it conforms to the agreed-upon definition.

In the early phase of our project, we worked with NMB to use Little-JIL to define NMB's IBB process. Having done this, we began to suggest ways in which computer and communications technologies might be used as agents. It became clear that it was highly desirable to be able to project to the various stakeholders a concrete sense of the eventual look-and-feel of these various processes and their automation approaches. In order to support this capability we created a rapid prototype tool, called STORM, which creates a wide range of user interfaces to a correspondingly wide range of possible ODR systems. Our plan is to use STORM to acquaint the NMB stakeholders with the operational characteristics of various ODR approaches in order to gain their active and effective involvement in defining NMB's ODR strategy and technology adoption approach.

### 3. THE STORM PROTOTYPE

We found that NMB quickly became quite adept in understanding out Little-JIL process definition language sufficiently to be active and effective participants in defining the NMB IBB process. While this was gratifying, it became increasingly clear that the larger stakeholder communities were unlikely to be sufficiently adept in understanding the process definitions to be effective in critiquing them and debating the merits of various variants of the process and various automation approaches. Active engagement of all seemed to require that human stakeholders in the NMB processes would need to interact with an actual computer capability. Thus, we elected to create a suite of user interface capabilities in the early stages of our project in order to engage these stakeholders. This suite of user interfaces, coupled with a simplified backend data repository, comprises STORM, our prototype dispute resolution support system. Ultimately we will use our Juliette system that interprets Little-JIL processes to provide automatic presentation of specific dispute resolution processes to these stakeholder groups. These processes will enforce various constraints and disciplines, as mandated by the various processes. As STORM is merely a user interface suite, it will be unable to provide this enforcement. Humans will have to provide these constraints and enforcement to users of the prototype. But, insofar as such disciplined application of STORM

is provided, stakeholder groups will be able to evaluate various ODR approaches.

STORM uses the Tapestry toolset as the basis for its user interface capabilities. Tapestry provides a comprehensive suite of facilities for the creation of web-based applications, and offers considerable flexibility. Thus, STORM was constructed by an undergraduate student in a period of a few months. The stakeholder response to the STORM prototype was been uniformly positive and quite enthusiastic. We expect that STORM will indeed be an effective tool for involving diverse stakeholders in evaluation of various approaches to ODR in NMB.

### 4. NEXT STEPS

We are currently analyzing the initial responses to STORM. Initial results from our evaluation are sketched in a companion note [3]. We are evaluating the trade offs of expanding the functionality of the system. At the same time, we are exploring ways to realize the promise of the computer as a Fourth Party to fully "assist in identifying and evaluating interests, options and solutions".

### 5. ACKNOWLEDGMENTS

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