Managing Large-Scale Systems with Automated, Centralized Applications: Using the Automated Submission System for Law Reviews

by

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BARKER
Abstract

Through the power of the internet, documents can be delivered almost instantaneously. Communications processes can happen faster. Existing systems may be centralized (or made sharable) and automated applications can be created. The concept of automated applications can be extended to many fields of endeavor, so that an Automated Submission System for Law Reviews is an attractive project. A distinctive feature of Law Reviews is that students are reviewing submissions from professors, other professionals, or even from other students.

The product of this research is the compilation of system requirements, which dictated the data and business model. By contacting law students actively participating in Law Review Boards, as well as professors, the data model was enhanced. It was extremely important to assure that the system was useful enough so that it generated workflow benefits, to entice Law Reviews to adopt the system. The Automated Submission System for Law Reviews would facilitate the submission process and communication between Authors and Reviewers.

The Automated Submission System for Law Review Articles will prove to be extremely convenient and attractive for both, Law Reviews and Authors, since it is a centralized system that provides information for all parties involved. Efficiency and usability are the key; the system provides these two essential elements.
Acknowledgements

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I owe my family a great deal of gratitude. Papa, Mama, Laura, Papi, Mamima, and Gerardo have always been supportive and have kept me motivated by helping me see the bigger picture.

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1 Introduction

Through the power of the internet, documents can be delivered almost instantaneously. Communications processes can happen faster. Existing systems may be centralized (or made sharable) and automated applications can be created. The concept of automated applications can be extended to many fields of endeavor, so that an Automated Submission System for Law Reviews is an attractive project.

The managerial issues that were encountered concerning the data and business model merit review, as well as the tradeoffs that are necessary to decide on a particular user interface design. The lessons learned can be applied to other similar systems, since the Automated Submission System for Law Review Articles can serve as an example for several kinds of automated systems.

1.1 Problem Statement

Law School publications are called Law Reviews. Law Reviews operate differently than conventional academic publications. There are also no standard operating procedures that govern all Law Reviews. There are over 300 of them nationwide, but within one law school there can be as many as ten Law Reviews, each concentrating on publishing articles on different topics. The University of Illinois Law School, for example, has six publications: the Law Review, the Elder Law Journal, the Journal of Law, Technology and Policy, the Comparative Labor Law & Policy Journal, Illinois Law and Economics, and the Illinois Public Law Paper Series. Some publish once a year; others publish as many as eight Reviews in one year. Their internal structures and organization are somewhat varied in each law school. Although there is no standard process followed by all Law Reviews, they all share the burden of relying heavily on human contact and receiving and sending packages by mail.

A distinctive feature of Law Reviews is that students are reviewing submissions from professors, other professionals, or even from other students. (Submissions may be
articles, reviews, or commentaries.) The most time a student can be on a Law Review board is two years, since the board members have to be second or third year law students. Therefore, there is little continuity within the Law Reviews. Also, the fact that students have the responsibility of reviewing these submissions makes it difficult to maintain contact and effective communication between the Reviewer and the Author.

1.2 Project Overview

The most difficult part in designing a new system and devising its requirements and specifications is to keep or make it user-friendly. When devising the Automated Submission System for Law Reviews the biggest issue was that, as a group working together in this project, we had to learn how the Law Review submission process works, how we could make the system useful to both Law Review editorial boards and to the professors and law students writing the articles.

The product of this research is the compilation of system requirements, which dictated the data and business model. By contacting law students actively participating in Law Review Boards, as well as professors, the data model was enhanced. It was extremely important to assure that the system was useful enough so that it generated workflow benefits, to entice Law Reviews to adopt the system.

The Automated Submission System was designed and created in order to give the submission process more continuity. It also provides a centralized, automated application where both Authors and Law Review board members can post and review submissions, and establish communication.

A centralized submission system is attractive for law students and professors to use, since Authors can virtually submit their manuscripts to many Reviews with the click of a button.
Law Review Submission Process

A person writes an article or essay and wants to submit it to Law Reviews. The Author may or may not be a law professor, though many law professors do submit articles because their tenure is heavily dependent upon article publications. In order to submit it to different Law Reviews, the Author must know what each Law Review requires for submission. The Author must perform a search. Once this research is completed, the Author then sends out many copies of his or her submission, and awaits an answer from any Law Review.

The best time to submit an article is mid-March to early April and September to mid-October because Editors are actively searching for articles to publish in their journals; the entire submission-acceptance process takes anywhere from 4-12 weeks. If the Author’s submission is accepted at a particular Law Review, the Reviews establish a deadline by which the Author must answer the Law Review whether or not he or she wants his or her article printed. However, an Author may request an expedited review from another Law Review which should be completed before the deadline set by the first Law Review that accepted his or her article. These expedited review deadlines may or may not be met.

Law Reviews on the other hand, usually need some confirmation that the Author’s submission has, in fact, been accepted at a Law Review before requesting an expedited review. Therefore, security is an issue. Figure 1 illustrates the general article state model diagram. This diagram is only meant to provide the reader with a general overview of the process, since workflow processes may vary from one Law Review to another. Note that although some articles may be conditionally accepted provided the Author edits the submission, other Law Reviews, such as the University of Chicago Law Review, never require suggested modifications to be made.

As can be inferred, this process is extremely paper-intensive, and requires many back and forth phone calls, faxes, and packages. The Automated Submission System for Law

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2 Please refer to Colleen O’Shea’s thesis for more information on workflow.
Review Articles intends to make this process less paper-intensive, and to give it more continuity, so that people do not have to rely on returning phone calls or waiting for packages to be delivered in the mail.

As for the Law Reviews, they receive an Author’s submission, evaluate its content, and make a decision. The internal organization varies, but there are usually several Editors-in-Chief, Articles Editors, and Reviewers. Some Law Reviews presently accept electronic submissions, but no uniform requirements exist throughout different Reviews.
Figure 1-1: General Article State Diagram
Automated Submission System for Law Reviews

The Automated Submission System for Law Reviews would facilitate the submission process and communication between Authors and Reviewers. At the moment, different Reviews have different requirements. Through the submission system, Authors can upload all the required documents and the Reviewers can retrieve all the information they need.

Having a centralized system facilitates the submission process between Author and Review. It is one system that may be accessed by an Author or Reviewer having a user account. Instead of relying on receipt of a paper product, a Reviewer may access his or her account from any computer. Law Reviews can log on to verify that an Author asking for expedited review has, in fact, been accepted at another Review. Authors can verify that their submission has been received.

1.3 Purpose

The purpose of this thesis is to discuss the issues that arise when managing large-scale systems with automated, centralized applications. The Automated Submission System for Law Reviews will be used as a case study. I will focus on the managerial issues that arose concerning the data and business model, discuss the tradeoffs while devising the system design, and state how these models dictated the graphical user interfaces (GUIs).

The issues concerning the data and the business model may be abstracted from this particular project and the lessons learned may be applied to new systems. While presenting the data and business models, I will discuss how these come together to form the relational database, and discuss how these two models dictated the GUIs used in the system.

I will discuss what can be learned from this experience and how these lessons can be used in future work (whether it is related or not related to this particular system). I will also
give a detailed discussion of how the experience can be related or applied to other centralized, automated systems that may be built in the future.
2 Literature Review

2.1 Introduction

There are many centralized submission systems on the web outside the journal article submission area. Monstertrak® (http://www.monstertrak.monster.com/) handles centralized submission of job resumes; Stellar® (http://stellar.mit.edu) is an MIT system for centralized management of courses; and Sloanspace® (http://sloanspace.mit.edu) is an MIT system that shares materials in a central repository. These systems are examples of the general framework that the Law Review system will follow. This chapter reviews two systems that are in the Law Review article submission area: the Express Online Delivery Service, known as ExpressO, and the Stanford Law Review website.

Many Law Reviews do not yet accept electronic submissions. To some extent this is due to printing costs that they may incur or to the fact that the Law Review internal workflow needs to drastically change in order to accommodate electronic submissions. Some Reviews are seeing the advantages of having electronic copies of the manuscripts that are submitted. Harvard, for example, requires a hard copy of the manuscript, but they do say that “it is helpful, though not required, to send a concurrent email attachment of the manuscript, preferably in Microsoft Word”\(^3\) to the articles chair.

Other Law Reviews, such as Stanford, are pushing to obtain only electronic submissions. It is encouraging to see a move in this direction, but Authors still have to invest time into searching which Law Reviews accept which format. Once Authors are accepted at one Law Review, they may request an expedited review at another Review. Expedited reviews are requested when an Author wants his or her manuscript to be reviewed and either accepted or denied before the acceptance deadline set forth by the Law Review that already accepted the submission.

Since Law Professors’ tenure is highly dependent upon Law Review publications, having

their submission published in a reputable Law Review is desirable. Therefore, an Author may have been accepted at “X” Law Review but may request an expedited review at Harvard Law Review. At the moment, Authors must do this by calling, emailing or faxing a particular Law Review. Very few Law Reviews prefer that Authors do this electronically, and Authors would have to repeat the expedited review request process each time he/she wishes to submit the manuscript to a different Law Review.

Submitting manuscripts to Law Reviews is very time consuming. Having a centralized information center that Authors may access would help change this. Law Reviews could access one system where they could search for new articles by category for themed volumes, where the submissions printed all have one common topic. The process would become more efficient.

It is evident that although not all Law Reviews have made the transition to only accepting online submissions, they are undergoing changes in their internal workflow. Centralized, automated submission systems will help make the change definite. In this chapter I will document the functionalities available in ExpressO and the Stanford Law Review system.

2.2 ExpressO

ExpressO is a commercial system powered by the Berkeley Electronic press. Law Authors may create a free account and log on to the system in order to upload their manuscripts. ExpressO then charges a fee for either emailing (if the Law Reviews accept electronic submissions) or printing and mailing these manuscripts to the Law Reviews specified by the Authors. Using ExpressO an Author can submit a manuscript to many Law Reviews.

The ExpressO website has a listing of the Law Reviews that are supported by the system. They currently serve over 375 Law Reviews. Only a few have an asterisk indicating that “certain law reviews require hard copies of manuscripts, which The Berkeley Electronic
Press prints and mails⁴. Stanford Law Review is one of them.

**Submissions**

ExpressO is not fully automated in the sense that once the Author chooses to upload his or her submission, the administrators then email the Law Reviews to which he or she has chosen to submit the manuscript. Law Reviews receive these online submissions via email; the process is not embedded in system. ExpressO is advantageous to an Author because instead of having to mail individual manuscripts, he or she may pay a fee and ExpressO will either email the manuscript to the selected Law Reviews or print a hard copy of the submission and mail it to any Law Reviews not accepting electronic submissions.

ExpressO charges Authors wishing to use the system $2 per email sent and $5 for each manuscript that needs to be printed. Many Law Reviews still do not accept only electronic submissions due to printing costs; many Reviewers prefer having a hard copy when reviewing an article instead of reading it on a computer, and would thus print the manuscript anyway. The University of Chicago Law Review and the Harvard Law Review are two of them. However, the University of Chicago requires that all accepted submissions be available on disk; therefore email submissions would be convenient.

After an Author has created an account he or she may log on to the system in order to upload a manuscript. The Author then selects the Law Reviews for submission from the following form (see Figure 2-1).

The Author checks the list and the form below tabulates the costs (see Figure 2-2). Notice that first time users obtain an “Introductory credit”. Also notice the differences in pricing when Law Reviews do not accept electronic copies. Stanford Law Review does not accept electronic copies submitted through ExpressO.

---

Steps to deliver your article:

1. Select the reviews to which you would like to deliver your article.
2. Verify the list of selected law reviews.
3. Upload your article and related information.
4. Review delivery details and provide payment (if necessary). (Note: $8 in free deliveries for a limited time. Click here for pricing details.)

Please select the reviews to which you would like to deliver your article, then click 'Continue'.

0 law reviews currently selected.

Figure 2-1: ExpressO Law Review Selection Form
Steps to deliver your article:

1. Select the reviews to which you would like to deliver your article.
2. Verify the list of selected law reviews.
3. Upload your article and related information.
4. Review delivery details and provide payment (if necessary). (Note: $8 in free deliveries for a limited time. Click here for pricing details.)

You have selected the following 5 law reviews:

<table>
<thead>
<tr>
<th>Selected Title</th>
<th>Delivery Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandeis Law Journal</td>
<td>$2</td>
</tr>
<tr>
<td>Brooklyn Law Review</td>
<td>$2</td>
</tr>
<tr>
<td>Revista Juridica de la Universidad Interamericana de Puerto Rico</td>
<td>$2</td>
</tr>
<tr>
<td>Stanford Law Review</td>
<td>$5</td>
</tr>
<tr>
<td>Texas Law Review</td>
<td>$5</td>
</tr>
</tbody>
</table>

* Certain law reviews require hard copies of manuscripts, which The Berkeley Electronic Press prints and mails. The $5 delivery fee for these special case law reviews is not covered by the delivery credit. Click here for pricing guidelines.

**Figure 2-2: ExpressO Price Table**

**Submission Requirements**

After corroborating the list of Law Reviews the manuscript must be submitted. The system allows for multiple Authors to be input although only the person uploading the article acts as the "contact Author". The Author(s), article title and subject are all required fields. Cover letters, resumes and abstracts are not required. All documents must be in Microsoft Word format.

An abstract of the submission in the scroll down text box is required if the Author wants it to be included in the ExpressO Legal Writings Repository. The Repository organizes all articles by subject area, which can be searched by Law Reviews looking to print themed volumes. This feature has not yet been implemented. Figures 2-3 and 2-4 illustrate ExpressO’s submission form.
Steps to deliver your article:

1. Select the reviews to which you would like to deliver your article.
2. Verify the list of selected law reviews.
3. Upload your article and related information.
4. Review delivery details and provide payment (if necessary). (Note: $8 in free deliveries for a limited time. Click here for pricing details.)

*required field

Authors* (click + to add authors/- to delete authors)

<table>
<thead>
<tr>
<th>Order</th>
<th>Small</th>
<th>First Name</th>
<th>Middle Name</th>
<th>Last Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Cumley</td>
<td>A</td>
<td>Cumley</td>
<td>none</td>
</tr>
</tbody>
</table>

Article Title*

Current Index to Legal Periodicals Subject Areas*
(To select multiple terms, press the Ctrl key or Apple key while clicking items in the list.)

- Accounting
- Administrative Law
- Admiralty
- Agency
- Agriculture Law
- Air and Space Law
- Animal Law

Figure 2-3: ExpressO Submission Form (1)
Once the manuscript has been uploaded the Author may review his/her submission along with the pricing information and the Law Review selection.

**Delivery Confirmation**

Authors receive a delivery confirmation. The system does not specify which form this is in, but presumably users will receive an email confirmation.

**Expediting Reviews**

Authors may email a specific Law Review through the system when requesting expedited reviews or withdrawing a submission.
Security
The security implemented in this system is minimal. Anyone can open an account; only an email address and password are needed. The system does not protect itself against the uploading of phony files.

Versioning
Only one version of a manuscript may be uploaded to the system. However, Authors may choose to submit manuscripts to more Law Reviews after an ‘initial’ round.

Article State Diagram
Figure 2-5 illustrates the Article State Diagram within the ExpressO delivery service. Notice how Authors may request expedited reviews at any moment since the system does not verify that the manuscript has in fact been received by a Law Review; it also does not check whether or not the manuscript has already been accepted at a Law Review. This creates a loophole since expedited reviews may only be requested after being accepted at one Law Review. The diagram illustrates the fact that manuscripts may be mailed or emailed.
Author Selects Law Reviews

Manuscript Submitted to System

Not Received By ExpressO

Selections and Manuscript received by ExpressO

Manuscripts Printed

Manuscripts Mailed to Law Reviews

Manuscript Emailed to Law Reviews

Request Expedited Review

Not Received by Selected Law Review

Manuscripts Received by Law Reviews

Request Granted

Request Denied

Manuscript delivery confirmation

Figure 2-5: Expresso Article State Diagram
2.3 Stanford Law Review

The Stanford Law Review has its own website, which an Author can visit and upload his/her manuscript, and request expedited reviews. Using the Stanford Law Review system, an Author uploads a manuscript and may request expedited reviews but is only submitting the manuscript to one Review.

Submissions

Stanford’s Law Review website encourages Authors to submit Articles and Book Reviews electronically. It also allows students to submit Notes or Comments.

In order to make an electronic submission, all that is required is that the Author write the Article Title, his/her First Name (in the case of co-written submissions, only one ‘contact Author’ fills in the form), his/her Last Name, Email, Address & Notes, Phone, and then upload the file. Figure 2-6 is a copy of Stanford’s Submission form. The same form is used for all submissions.

![Figure 2-6: Stanford Law Review Electronic Submission Form](image)

Figure 2-6: Stanford Law Review Electronic Submission Form
**Submission Requirements**

If Authors wish to submit a cover letter or a resume along with their manuscript, they must attach this to the first pages of the document, since only one document may be uploaded. This document must be in Microsoft Word format. All the fields in the form above must be filled.

**Delivery Confirmation**

Once Authors have uploaded their manuscripts, they get an “Acknowledgement of Submission” message, along with a unique Article ID number, and a display of the information the Author originally had submitted. Below is a screenshot of the message that is displayed on the browser.

![Acknowledgement of Submission Form](image)

**Figure 2-7: Acknowledgement of Submission Form**

**Expedited Reviews**

Expedited review requests should be made online; Stanford does not accept any by fax or email. The Author has to input the submission ID and email address and fill out the form below (see Figure 2-8).
Figure 2-8: Expedited Review Request Form

Once the Author hits the “SUBMIT” button another form confirming the request appears. Multiple expedited review requests may be done simultaneously (see Figure 2-9).

Figure 2-9: Expedited Review Processed
Security

Security is minimal to none. Membership is not required in order to access the system. Authors click on the “SUBMIT” button in the electronic submission form (Figure 2-6) and the system only verifies the validity of the email address and that all fields are filled. However, the system does not prevent any random files from being uploaded, and invalid information may be inputted in all other fields. It allows anything to be uploaded, so that the system can potentially be flooded with unwanted submissions.

Versioning

Only one draft of the manuscript may be uploaded. If subsequent versions are received of the same submission, it might be disqualified and not considered for review.

Article State Diagram

Figure 2-10 on page 32 illustrates the Article State Diagram within Stanford’s electronic submission system. Notice that, only after receiving the Article’s unique ID, can an expedited review request be made.
Figure 2-10: Stanford Law Review Article State Diagram
2.4 Conclusion

Current systems are promising. They illustrate the fact that Law Reviews are currently undergoing changes in their internal workflows in order to accommodate electronic submissions and the use of centralized repositories and delivery services.

ExpressO is a robust system that is helping change the way electronic submissions are perceived and received by Law Reviews. It gives Authors the power to submit one manuscript instantly to many Reviews. However, the system works only “one-sidedly,” since only Authors gain functionality. Law Reviews only benefit from the system by receiving submissions via email. At the present moment, ExpressO developers are working on the ExpressO Legal Writings Repository, which will allow Law Reviews to browse through article titles by category. This feature will appeal to Law Reviews, forcing them in turn to regularly visit the system.

The Stanford Law Review Electronic System is extremely convenient for the Law Review Board to use. They can view all documents received online and log on to view expedited review requests, but it is only a single Review. So in this case, it is the one Review that gains all the functionality while the Authors are still required to research each Law Review’s requirements.

The Automated Submission System for Law Reviews will combine the functionalities offered by ExpressO and the Stanford Law Review System. It will be more convenient for both, Law Reviews and Authors, since it is a centralized system that provides information for all parties involved. The next chapters provide a detailed discussion of the system.
3 System Elements

3.1 Introduction

In this chapter I will discuss the requirements of the Automated Submissions System for Law Reviews. The research was conducted by interviewing a law professor from Northeastern University Law School, two University of Chicago Law Review members, and one Law Review member from the University of Illinois Law School and Columbia University Law School; the input that was received resulted in the system requirements.

In order to present a robust data model, a comprehensive set of requirements must first be gathered. The problem with this collection process is that “requirements change as often as the users see what can be done […] and now ask for additional capabilities⁵.”

Since some of the intended users of the Automated Submission System already knew about the ExpressO system, they asked for additional capabilities not available in ExpressO. Once the developers sense the realm of possibilities for additional processes and functionalities, the data model can be adjusted.

In any Information Technology project, “Scope creep is a constant threat⁶.” The Automated Submission System for Law Review Articles is no exception. As the project advanced, the set of requirements became more detailed. The developers needed to weigh the advantages of adding more features against delivering the project on schedule. Some features were deemed worthwhile for the current scope of work; others were not and thus are included and discussed in the Future Work section towards the end of this thesis.

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3.2 How the Requirements Dictate the System Design

Once the requirements are decided, the development team can design the data and business models. The team needs to make sure they understand the processes that need to be embedded in the system, which can be represented and conceptualized with state diagrams and studying the workflows. The data and business models serve as a template for the database design, and dictate the Graphical User Interfaces (GUIs).

The system requirements are presented in the rest of this chapter in the same way ExpressO and the Stanford Law Review Submission System were organized. This way a clearer comparison between systems may be done. The focus of this thesis is on the data and business models, which will be discussed in the next chapter; however, learning about the requirements will allow the reader to obtain a better understanding of the system and its data model.

3.3 Automated Submission System for Law Review Articles

Users will need to register in order to obtain an account. A disclaimer is displayed stating that the user must allow a 24-hour period before logging into the system after registering. This is required so that the system administrators will have enough time to evaluate the credibility of any person (Law Reviews or Authors) requesting an account.

For an Author, the information needed to create an account is the first and last name, a phone number, email address, street address complete with city, state and zip code, and if applicable, the university affiliation and a fax number. The latter two are not required items.

The information needed in order to create a Law Review account is the contact editor’s first and last name, the office phone number, the editor’s email address, university affiliation, the Law Review name and street address. A Reviewer’s account must be created when registering for the first time as well. Each Reviewer will need to provide

7 Please refer to Colleen O’Shea’s thesis for more information on the system requirements.
his/her first and last name, the Law Review’s phone number; his/her email address, the university affiliation, the Law Review name, and the reviewer’s home address. In both cases a fax number may be provided but is not required.

The information needed to login is the username and password. If the user forgets his/her username, a hint question which he/she will have chosen from a drop-down list will be asked and checked against the answer he/she provided when registering.

Authors may log on to the system to check the status of their manuscripts as well as to add more Law Reviews after an initial submission, request expedited reviews and withdraw their article from consideration at Law Reviews.

Law Review Boards may log on to the system to change a manuscript’s status, accept or deny expedited reviews and change the Law Review’s requirements.

Submissions

The Automated Submission System for Law Reviews will be free of charge for all registered users. In the future, maintenance costs could be paid by selling advertisement on the site (i.e. banners) in the event that the system is maintained by a third party. It is not certain how long the system will be free, but the developers want to attract as many users as possible when the system is launched.

When Authors submit their manuscripts to the system, they are stored in the system’s database and sent out to the Law Reviews’ system repositories as chosen by the Author. The Author uploads the documents needed, then is able to see the list of participating Law Reviews and chooses which ones to submit to. The system is easy to use and saves Authors a lot of time by having all information they need (each Law Review’s submission requirements, deadlines) in one central repository; it also saves them money from mailing all the manuscripts to the different Law Reviews.
Submission Requirements
All documents being submitted must be in Microsoft Word format. The Author will need to upload a cover letter and/or curriculum vitae, which must be submitted in one file if the Author wants to submit both documents. In addition, the Author must upload an abstract, the title of the submission, the category of the submission (so that documents may be organized by category and Law Review Editors may search for submissions by category when printing themed volumes) and finally, the actual manuscript.

The system allows the user to review each Law Review’s submission requirements, including submission and acceptance deadlines. Law Review Editors may view and update their Law Review’s information as well.

Delivery Confirmation
At the moment, there is no delivery confirmation email generated by the system. However, an Author may log on to the system and verify the status of his/her submission. If it has been received, the status will read “Submitted to ALRSS”. The system will only generate an email sent to the Author when a submission is accepted.

Expedited Reviews
Authors may log on to the system in order to request expedited reviews from Law Reviews where their manuscripts have already been submitted. The system queries the database in order to check that the manuscript status is “Accepted” at any Law Review. If the query returns at least one acceptance at any Law Review, then the expedited review request goes through. Authors also select the deadline for the Law Review to review the manuscript.

Law Review Editors may log on to the system to view expedited review requests in the previous week. They may either accept or deny these requests. However, if the deadline set by the Author passes, then the manuscript status changes automatically from “Under
Expedited Review” to “Denied.” It is up to the Law Review to contact the Author if they are still reviewing the submission.

If the Law Review denies the expedited review request, then the submission status is changed from “Under Review” to “Denied.

Security
There are two instances where security is especially important in order to ensure the integrity of the system and enforce the sequence in the state diagram. The first is when first-time users are creating accounts and the second is when Authors request expedited reviews.

The system has a 24-hour account set-up in order to check that any person setting up an account is law-affiliated. This will prevent non-affiliated people from submitting and reviewing manuscripts.

When Authors request expedited reviews, the system database is queried in order to check that the manuscript has, in fact, been accepted at least at one Law Review. This will help workflow and will prevent Authors from trying to request expedited reviews before receiving any acceptances.

Versioning
Multiple versions are allowed only when the article status has been changed to “Accepted with Changes Required.” If editing is not required by either the Law Review or the Author, the status of the submission is “Accepted with No Changes Required.” When this is the status, no other versions may be uploaded to the system. If an Author wishes to make any changes, he/she must personally contact the Law Review so that they may change the status in order to allow for multiple versions. This prevents Law Reviews from reviewing different versions simultaneously. Authors may find each Law Review’s contact information in the system, although at the moment the system does not allow
them to contact the Law Review through the system.

**Withdrawing Manuscripts**

Authors may at any time withdraw their manuscripts from any Law Review where it had previously been submitted through the system. Once an Author does this, the status of the manuscript is changed to "Withdrawn."
4 System Design

4.1 Introduction

In this chapter I will discuss software issues that arise while managing and implementing large-scale systems with automated, centralized applications such as a database. I discuss the importance of building a data model, a business model, and how the former dictates the graphical user interfaces.

The Automated Submission System for Law Review Articles is a single environment, where data from both Law Reviewers and Authors is integrated. It is critical to understand the processes embedded in order to accurately design a successful system. “Integrating the logical data models and gathering comprehensive and accurate metadata are much more critical than on a traditional project”⁸. In this project, the data integration becomes difficult because different workflows are being merged, and a new business model is created.

A logical data model represents how these data are related with respect to some underlying business policy⁹; the terms logical data model and business model will be used interchangeably in this document. Hence both the data and business model may be represented in one graph.

The combination of the data and business models may be used as a blueprint or schema for the database design in a system. Therefore, this diagram serves a double purpose; it represents the database design and documents the business data organization¹⁰ inherent within the system.

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4.2 State Diagram

One way of gaining a better understanding of the business process is to make a workflow model. Although I will not go into a detailed discussion about workflow in this thesis\(^\text{11}\) these diagrams "are very useful for understanding a business process"\(^\text{12}\). However, state diagrams inherit the same idea as a workflow model but they "describe the sequencing of activities, with support for both conditional and parallel behavior"\(^\text{13}\). Figure 4-1 illustrates the article state diagram for the Automated Submission System for Law Review Articles.

An Author visits the system website and uploads his/her manuscript along with all the required documents. The submission is then received by the Automated Submission System, and stored in the system database. The Author chooses which Law Reviews he/she will submit the manuscript to. The next time a Law Review Editor logs on, he/she receives the new submissions. Since Law Review editors have access to browse through all Submitted Articles, an Author may receive a request from a Law Review wishing to review his/her article. The submission process would be repeated and the article would loop through the beginning stages of the state diagram once again.

A Law Review may not receive a submission if the system encounters any problems with its database, or if somehow the submission transfer was interrupted. If a submission is not received by the Law Review, the article reaches an end state. It would not proceed to another stage.

When a Law Review does receive a submission, the review process really begins. The submission is now "Under Review", but it is uncertain how long it stays in this stage. It may never proceed any further at some Law Reviews. There are five possible states to

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\(^{11}\) Please refer to Colleen O'Shea's thesis for more information on workflow in the Automated Submission System for Law Review Articles.


which the submission may proceed. The submission may be “Accepted with No Changes Required,” “Accepted with Changes Required,” “Denied,” “Withdrawn” or, to “Request Expedited Review.”

When a submission is “Accepted with No Changes Required,” it may be “Withdrawn,” or if the Author requests to make changes and submit a new version to the accepting Law Review, then it proceeds to the “Accepted with Changes Required” state. The submission may proceed directly from the “Accepted with No Changes Required” state to the “Final Version.”

A submission may be “Accepted with Changes Required.” When a submission is in this state, new versions of the same submission may be submitted. Versioning is restricted to this state only in order to prevent Law Reviews from reviewing different versions of the same submission at any given time. When a submission proceeds to the “Version” state, it can only loop back to the “Accepted with Changes Required” state, from which the only other states it can proceed to are “Accepted with No Changes Required” (once all the revisions are done) or “Withdrawn,” if an Author decides to withdraw the manuscript from consideration.

Authors can only request expedited reviews once the article is already “Under Review”. The acceptance verification process is embedded in the system; it prevents any loopholes in the system. When an Author tries to request expedited reviews, the system runs a query, and only if the status of the submission is “Accepted with No Changes Required” or “Accepted with Changes Required” at a minimum of one Law Review does the system allow the Author to request an expedited review. This is an advantage the system has over ExpressO and Stanford’s Law Review System, which allow Authors to request expedited reviews at any moment since the systems do not verify the manuscript’s acceptance at a Law Review. From “Request Expedited Review” a submission may either be “Denied,” proceed to be “Under Expedited Review” or be “Withdrawn” from consideration by an Author. When a submission is “Under Expedited Review,” it follows
the same process as a submission that is “Under Review.”

If a manuscript is “Denied” it can only proceed to an end state. The manuscript may reach the “Denied” state after being “Under Review”, after “Request Expedited Review”, or after being “Under Expedited Review.”

A submission may be “Withdrawn” at any moment before reaching an end state. An end state may only be reached if a submission is “Withdrawn” or after reaching the “Final Version” and accepting a Law Review’s offer.
Figure 4-1: Article State Diagram for the Automated Submission System for Law Reviews
4.3 Data & Business Model

In order to generate an appropriate and accurate data and business model for a system, the developers must first understand requirements set forth by the users. Once this process is completed, working on the data model is more straightforward, although several iterations of the model might be necessary as the developers get more acquainted with the business process.

After editing and adapting the system’s data model several times, it consists of fifteen entities with their related attributes and unique primary keys. On initial development of the system model, some tradeoffs were considered. The first versions of the data model did not correspond to the database tables and entries, but as the development team revised the data model, greater correspondence was achieved.

The system database was developed using SQL Server. One of the reasons the developers opted to use SQL Server is because it supports full-text indexing, which was needed in order to implement the search pages. At the moment, the database is modeled exactly after the data model. The system database also has fifteen tables, which are queried in order to retrieve information by using the Standard Query Language (SQL). By implementing a user-friendly interface, users are able to easily ‘build’ their own complicated SQL queries. One of the most important queries is the query that verifies whether or not a submission has been accepted at a Law Review, and then allows the Author to request an expedited review at other Reviews.

All the data were normalized and the entity repetition was limited as much as possible in order to make the database and data model as straightforward as possible. Referential integrity is enforced. I will now discuss the key entities in the data model (see Figure 4-2 on page 51).
**Users**
The key part of the system is its users. This table has a username as its primary key, which is requested by each user when registering. The system runs a query against the database and if it is not unique, an error is returned and the user must choose a different username. Each user may be an administrator, an editor, a reviewer or an Author. Hence, ‘Users’ has a one-to-one relationship with the ‘Administrator’, ‘Editors’, ‘Reviewers’ and ‘Authors’ tables. The relationship between ‘Address’ and ‘Users’ is a many-to-one relationship, since many users may have the same address if they work at the same Law Review, for example. The entities password, role, enabled, question, answer, fullname, email, and AddressID are also associated with each user. AddressID serves as the foreign key to the ‘Address’ table, and username serves as the foreign key to the ‘Administrator’, ‘Authors’, ‘Reviewers’ and ‘Editors’ tables.

The role of each user may be either as an Administrator, a Reviewer, an Author or an Editor. When a user registers on the website, he/she may choose to register as either an Author or a Law Review Editor, who then has the capability to register other users as Reviewers. The enable attribute is a Boolean used only by the administrators, who may enable or disable an account. The question is chosen by each user when first registering. It is used when users forget their password, in which case they answer the question and if correctly answered then their password is emailed to them.

**Authors**
The username is this table’s primary key, as well as its foreign key to ‘Users’ and ‘Author_Article’, which is explained below. Authors have a one-to-many relationship with ‘Author_Article’, since one Author may submit many articles. Each Author may or may not have a UniversityID. This entity serves as the foreign key to the ‘University’ table. If an Author does have a UniversityID, then this table is related to the ‘University’ table (the only attribute stored in this table is the UniversityID). If an Author does not have a UniversityID, then the tables are not related and it is assumed that the Author is not a Law Professor, but it does not affect workflow or the system in any other way.
**Author_Article**

This is a metatable created to avoid many-to-many relationships and normalize the model. It has a combined primary key made up of ArticleID and the username. The table has a many-to-one relationship with 'Authors' and 'Article'; Authors may submit many articles. No other information is stored in this table.

**Article**

Each article has a unique identifier, ArticleID, assigned automatically by the system. ArticleID is also the table’s primary key. The attributes associated with each article are Title, Article, Abstract, Cover_Letter/Resume, Document_Type, and SubjectID. These attributes are self explanatory except Document_Type, which is an article, commentary, or review. Cover_Letter/Resume reflects the fact that if an Author wishes to submit both, he/she must combine it into a single document in order to upload it. The SubjectID serves as a foreign key to the ‘Subject’ table, which categorizes each submission. The subject is chosen by Authors when they are uploading their submission.

This table has a one-to-many relationship with ‘Author_Article’, ‘Article_Reviewer’. An article may have one or many Authors, although only one Author acts as the contact Author since only one submits the manuscript to the system. However, Authors may have more than one submission circulating the system. An article may have one or many reviewers. If it has many reviewers, these may be at different Law Reviews, or perhaps multiple reviewers are reviewing the article at a Law Review (this depends on the workflow and organization of the specific Law Review).

‘Article’ has a one-to-zero or many relationship with ‘Article_Status’ (as discussed above) and ‘Version’. Since versioning is only allowed if the submission state is “Accepted with Changes Required”, not every article has a version, as discussed in the state diagram. A submission obtains a status once it is received by a Law Review.
This table has a zero or many-to-one relationship with ‘Subject’. This prevents any non-existent article to have a subject but forces each submitted article to have one. The ‘Subject’ table has a SubjectlD as its primary key and is the only information that is stored in this table.

**Article_Status**

Each article has a status within each Law Review’s review process. The StatusID attribute stores this information, which is the foreign key to the ‘Article_State’ table holding the possible states of an article that were previously discussed. The combination of ArticleID and ReviewID is unique since an article is only submitted once to a particular Law Review; this is the primary key of the ‘Article_Status’ table.

Other attributes associated with this table are: date_submitted_to_system, date_first_accessed_by_Law_Review (which is also the date the submission obtains a StatusID), data_accepted_by_Law_Review (if at all), status_change_date , and internal_deadline. The status_change_date changes as the submission state changes. The internal_deadline is a deadline for the submission to be reviewed and is set by the Law Review.

This table has a many-to-one relationship with ‘Article’ (as mentioned above) and ‘Law_Review’. A Law Review receives many submissions, all of which must have a status.

**Version**

An article may have many versions associated with it, in which case the version would also be associated with a particular Law Review. An Author may decide to upload a revised copy of the article, abstract, cover letter and/or resume. The database also keeps a record of the date in which the submissions were revised.
This table uses the combination of VersionID, ArticleID and ReviewID as its primary key, and has a zero or many-to-one relationship with ‘Article’ and ‘Law_Review’.

**Article_Reviewer**

An article has an editor and a reviewer associated with it, and since an article may be submitted to many Law Reviews, the ArticleID along with the ReviewID are used to identify the article and Law Review. ArticleID, ReviewID, reviewer and editor make up the primary key of this table.

The personal_deadline is a deadline set by the reviewers for themselves and their own personal use. It may be an earlier date or the same deadline as the internal_deadline, which is set by the Law Review editors, found in ‘Article_Status’, but this depends on the policy or workflow rules of each Law Review.

**Law_Review**

Each Law Review is identified by a ReviewID throughout the system. A Law Review’s information is stored in this table. This information includes the contact editor (contact_editor_fullname), whose name and email address will be displayed in the system in case an Author has a specific question pertaining to a specific Law Review, the review’s submission and copyright requirements (submission_and_copyright_requirements), and the date these were last updated (submission_and_copyright_requirements_last_update) and a Boolean that returns true if the current issue is full (current_issue_full). The university affiliated with the Law Review is also stored (UniversityID). An Author must look up the requirements of each Law Review and must adhere to the copyright requirements set forth by each review.

**Reviewers**

Each reviewer has a unique username and is associated with a Law Review by the ReviewID attribute. A reviewer may also have zero or many articles assigned to him/her
for reviewing, which is illustrated by the one-to-zero or many relationship this table has with ‘Article_Reviewer’.

Editors
Each editor has a unique username and has a many-to-one relationship with ‘Law_Review’. Editors have a one-to-zero or many relationship with ‘Article_Reviewer’ since they may be assigned to edit many articles.
Figure 4-2: Data Model for the Automated Submission System for Law Review Articles
The data model and the state diagram dictate what the interfaces should look like. Therefore it is only logical to go proceed to give the user a virtual tour of the website by studying screenshots from the system in the next chapter. By having a thorough understanding of the data model can efficient user interfaces can be developed. Efficiency and usability are the key aspects of graphic user interfaces.

4.4 Graphic User Interfaces

“Graphical user interfaces (GUIs) determine system usability”\(^{14}\). Being consistent in the user interfaces throughout the system enables the users to gain familiarity with the overall style. By understanding the users’ (authors and reviewers) needs, an efficient GUI may be developed. In this sense, the data and business model as well as the state diagram dictate what the interfaces should look like.

It is important to think about use cases when designing the GUIs. “The system has to enable the user to complete every use case, and the user interface is the gateway into the use cases”\(^{15}\). Although use cases have not been discussed thus far, the requirements manual of the Automated Submission System for Law Review Articles was developed as a user manual, which covers every scenario a user would encounter when using the system. The user manual then can be used to develop use cases and thus create the GUIs necessary\(^{16}\).

When developing the GUIs for the system one option was to use Cascading Style Sheets. Since the system was developed using Microsoft.Net\(^{17}\), .Net was used to develop the layout of the pages as well. In a way cascade style sheets were mimicked. Style classes were developed instead and applied to each type of label within the code.

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\(^{16}\) Please refer to Colleen O’Shea’s thesis for more information on the user manual.
\(^{17}\) Please refer to David Gottlieb’s thesis for more information on the software development.
Before discussing the GUIs within the system studying the Navigation Tree below will help the user visualize the system design. The first Navigation Tree shown below illustrates which pages a user can go to from the home page. Figures 4-4, 4-5, and 4-6 also illustrate where a user can navigate from the Author Home Page, Law Review Editor Home Page and Law Review Reviewer Home Page, respectively. For simplicity, these have been illustrated on separate figures.

![General Navigation Tree](image)

**Figure 4-3: General Navigation Tree**
Figure 4-5: Law Review Editor Navigation Tree
I will now discuss the user interfaces that are encountered when an Author, Editor or Reviewer visits the system. Some screenshots might seem ambiguous at first; future features described in Chapter 5 will result in improvements in the user interface as well. The reader will receive a ‘tour’ of the system by studying the user interfaces and reading the accompanying text.

The first screenshot displays what a user will see when first visiting the website, which is located at http://gottlieb.mit.edu/ALRS/ALRSS.aspx. Even though there are many options the user may choose, they are well organized and the page is easy to scan.
If an unregistered visitor visits the website, he/she may either search for submitted manuscripts. The search will only return a submission’s abstract along with the Author’s name. If the user wishes to learn more about the Author, he/she may click on the Author’s name to obtain more information on him/her. Please refer to Figure 4-8 to see what the search page looks like. The user may choose to search for a manuscript by category, or by conducting a full text search, which will scan the articles and return the submissions containing the search phrase. Law Review Editors may search for submitted manuscripts. However, when the search is conducted from an Editor’s search page within the system, the search does return the full manuscript, along with the abstract and information on the Author.
Any person who visits the site may also read about the system by clicking on the link provided on the system’s home page (see Figure 4-9 below).
The idea for ALRSS was developed in October 2003 as a Masters of Engineering thesis project. The founders of ALRSS are:

- Patricia Crumley, MEng.SB Civil Engineering
- David Gottlieb, MEng.SB Computer Science
- Colleen O'Shea, MEng.SB Civil Engineering

The motivation of ALRSS was to solve the law article submission problem. At the time, law professors would submit articles to every law review in which they wanted their article published. For most law professors, this would be around 60. This translated into 60 copies of the same article being submitted either electronically, fax, email or regular mail!

The most significant correction ALRSS made was to centralize all the data and information and automate almost all the necessary communications. This means that an Author only needs to upload his/her submission once and it will automatically be distributed to the Law Reviews he/she chooses. Law Reviews may log on to the system to receive these submissions. If you are interested in more of the technical details, click on the links under the founders names to read their theses on ALRSS. Check back later for more updates about us!

Figure 4-9: About the System

People visiting the site or any user may send the administrators their comments. They may classify their comments as a Suggestion, an Error, or a Complaint, as may be seen in Figure 4-10 below. Error messages will be given special consideration and will be fixed as soon as possible.
If a user is already registered, he/she may visit the Log In page, which is shown in Figure 4 below. If a user is not registered, he/she must create an account. A user will have to choose between creating an Author account or a Law Review account as can be seen on the home page in Figure 4-11.
Authors, Editors and Reviewers all have different home pages, which display different options when logging on. Authors have the capability to submit manuscripts. Editors have workflow capabilities and have access to more information than Reviewers.

**Authors**

Authors creating new accounts must fill out the form shown below. They are given the option to identify whether they are affiliated with a university, if at all.
Automated Law Review Submission System

Create New Law Author Account

Note: Please allow 24 hours of processing time before attempting to log in.

Required fields are marked with a (*).

- Full Name: (e.g. John Smith, Mary Green)
- Street Line 1:
- Street Line 2 (Optional):
- City:
- State: (e.g. MA, NJ, CA, etc.)
- Zip Code: (5 digits only)
- Phone Number: (e.g. 6175551234, please no spaces or dashes)
- Fax Number: (same format as phone number)

Figure 4-12: Create New Author Account

If an Author already has an account, he/she will see the Author’s home page as shown below. An Author may choose to update his/her contact information, view each Law Review’s requirements and copyright agreements, upload submissions, submit the already uploaded submissions to particular Law Reviews, check the status of an already submitted manuscript, request expedited reviews, submit edited versions of an already accepted manuscript at a particular Law Review, change his/her password and hint question/answer or logout.
Figure 4-13: Author's Home Page

An interesting feature the system has is that when Authors may submit a manuscript to Law Reviews after an 'initial round' of submissions. When Authors revisit the submission page, all the Law Reviews’ names are still there, except that in order to avoid multiple submissions, the Law Reviews to which they have already been submitted are disabled (see Figure below). If the user clicks on (R), he/she may see the Law Review’s requirements. If the user clicks on (C), he/she may review the copyright agreement.
Law Reviews

When first registering a Law Review, a Contact Editor’s information will need to be inputted, along with the Law Review’s information. The contact editor setting up the account will also register a reviewer at this time. Once the account is set up, a disclaimer is displayed stating that a 24-hour account validation period is needed. The newly registered user will need to wait until the account is enabled by the administrators.
Law Review Editor

Law Review Editors log on to the system, which takes them to the Editor’s home page. In it, an Editor may update his/her contact information, update the Law Review’s submission requirements and copyright agreement, view/delete Law Review members, add members, assign manuscripts and view workflow for either the entire Law Review team or his/her own assignments, search for manuscripts, change passwords and/or hint question and logout. Notice that the Editor’s name and law school affiliation are displayed.
Automated Law Review Submission System

Welcome to your ALRSS Law Review Editor page, Nicola Mrzak

Figure 4-16: Law Editor Home Page

Below is a screenshot of the workflow page. Only Editors have the capability to edit the workflow of a particular submission. Once he/she clicks on the 'Edit' button, the options to edit the Editor, Reviewer, deadlines and status of the manuscript appear on the bottom of the page. This is illustrated on Figure 4-18. The status options that appear correspond to the possible states illustrated in the Article State Diagram (Figure 4-1).
### Automated Law Review Submission System

#### Control Workflow for Stanford Law Review

<table>
<thead>
<tr>
<th>Title</th>
<th>Manuscript</th>
<th>Abstract</th>
<th>Cover Letter</th>
<th>Editor In Charge</th>
<th>Assigned Reviewer</th>
<th>Editor Deadline</th>
<th>Reviewer Deadline</th>
<th>Comments</th>
<th>Status</th>
<th>Expected Review Deadline</th>
<th>Workflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover Letter</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>brigham jasonfreedman</td>
<td>4/24/2004</td>
<td>4/24/2004</td>
<td></td>
<td></td>
<td>Accepted with No Changes Required</td>
<td></td>
<td>Ed</td>
</tr>
<tr>
<td>Harvard Law Review Paper</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>odeshoo jasonfreedman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Submitted to ALESS</td>
<td></td>
<td>Ed</td>
</tr>
<tr>
<td>Observation of Education</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>brigham jasonfreedman</td>
<td>4/28/2004</td>
<td>4/28/2004</td>
<td></td>
<td></td>
<td>Accepted with No Changes Required</td>
<td>Ed</td>
<td></td>
</tr>
<tr>
<td>Resume</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>brigham jasonfreedman</td>
<td>5/2/2005</td>
<td>5/4/2004</td>
<td></td>
<td></td>
<td>Accepted with Changes Required</td>
<td>Ed</td>
<td></td>
</tr>
<tr>
<td>Yale Law Journal Requirements</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>odeshoo jasonfreedman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Submitted to ALESS</td>
<td>Ed</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4-17: Control Workflow (1)**
**Law Review Reviewer**

The Reviewer has the least options on the home page. He/she may update contact information, along with viewing his/her assigned submissions to review, change the password and hint question, and log out. Notice that the Reviewer's name is displayed, along with his/her law school affiliation and the number of manuscripts left to review.
Welcome to your ALRSS Law Review Reviewer page, Jason Freedman. You are a member of Stanford Law Review, which is affiliated with Stanford University.

There are 6 manuscripts that you still need to review.

The GUIs throughout the system are consistent in their wording, spacing and layout; they correspond to both the state diagram and the data model. The user can know what to expect when navigating to a new page within the submission system.

The reader may refer to the Appendix in order to see all the GUIs in the system. The GUIs discussed in this chapter were chosen primarily because their content was not intuitive, or they play a critical role in the fulfilling the functionalities needed dictated by the requirements. The system requirements are fulfilled by the user interfaces. In the following chapter future work that may enhance the system will be highlighted, along with a discussion and the conclusion.
5 Future Work & Conclusions

Future Work

There are many areas of future work to be considered in order to enhance the Automated Submission System for Law Reviews. One option that immediately comes to mind is generating more emails, such as when a submission is accepted. Since generating emails is relatively easy, perhaps each particular Law Review should be able to configure this option and decide whether or not they want to generate them. This would affect the general layout of the Law Review Editor GUIs because they would be the people responsible for configuring the options.

The system could also generate a profit by adding advertising banners to the website. This would add an entire new dimension to the system, and a financial system would need to be implemented. The system developers could sell the system as is to a third party that could develop it further and maintain the site for future use. Since adding this feature would add considerable amount of information into the system, the data model would be affected and new entities would probably have to be created, as well as creating another entity relating the role of the person in charge of the financial system back to the ‘Users’ table.

However, since the main focus of this thesis is the data model, I will highlight future work to be done that will directly affect the database or the layout of the GUIs.

One obvious way in which the system may be enhanced is by enhancing the search options within it. This would require more SQL queries.

When uploading documents, at the present moment Authors need to upload a cover letter and/or curriculum vitae. These must be submitted in one file if an Author wishes to submit both. A possible feature that may be added is to allow Authors submit these as

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18 Please refer to Colleen O'Shea's thesis for more information.
19 For a complete discussion on all future work, please refer to the project report.
two separate files that are not required by the system, and it is up to the Author to find out whether the particular Law Review he/she is submitting to require them. This would affect the data model because instead of having one attribute for one or both documents, two more attributes would need to be added in two different entities. Instead of having Cover_Letter/Resume in the ‘Article’ table, these would be split. In the ‘Version’ table, Revised_Cover_Letter/Resume would also become two separate attributes.

Another option would be to have a new database table that only has the cover letter and reviewID as attributes so that Authors can tailor their cover letters to different Law Reviews if they wish to do so. Authors will not necessarily like having to send the same cover letter to every Law Review where they submit their manuscripts. This would also alter the Upload Submission user interface, since uploading different cover letters to different Law Reviews would have to be placed on a new page.

At the moment, an Author may only upload and submit a new version to a particular Law Review if his/her manuscript if it has been accepted at that Law Review. However, Authors may click on “Submit Edited Version of Accepted Manuscript” on the Author’s home page, which will then direct them to another page where they can retrieve which Law Reviews (if any) have accepted their manuscripts. The user interface will become more intuitive if the button on the Author’s home page becomes disabled instead. The button that allows Authors to withdraw submissions should also be disabled when Authors have already accepted the offer to be printed at a certain Law Review.

At the moment, if Authors want to contact Law Reviews they may look up an Editor’s contact information, but they have to send the particular Law Review Editor an email. They cannot directly contact Law Reviews through the system. This would affect the user interfaces and perhaps a new database table would have to be created so that the table in order to facilitate communication between Authors and Law Review. However, how the data model would be affected would depend on how the feature was to be coded.
Some Law Reviews have a policy to not reveal an Author’s identity when a submission is being reviewed. This may be addressed in the database by adding an attribute in the database that is true when an Author’s name is not revealed and false when it is. Submissions would have to be scanned for an Author’s name, which would be hard to do because some Authors may quote themselves. The software process would have to be carefully thought about, but I will not go into detail.

Last but not least, proposing a kind of universal copyright agreement that would encompass all Law Reviews within the system. This would affect the user interfaces because it would either have to be on another page, or would have to pop up (as happens in software installation) and users would have to agree to it before continuing to use the system. At the present moment, Authors are not forced to read any copyright agreements. It should be made more explicit. Another idea would be to have a hyperlink on the submission page.

Conclusions
The Automated Submission System for Law Reviews was implemented according to the requirements and data model. By going through the process of developing and implementing an entire functioning system, many lessons may be learned and applied to future systems. The most important lesson that comes to mind is that developers must always be open to change. The first step is developing the requirements, but as the system begins to be implemented, and the spiral model moves forward, certain features are changed because of the way they need to be coded. Time was also a restriction; therefore features that were implemented corresponded to the priorities set as dictated by the system deliverables.

As previously mentioned, the systems that are being developed and that exist at the moment are promising. Perhaps reluctant at first, Law Reviews are undergoing workflow

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20 For more information on how this would affect the system requirements, please refer to Colleen O'Shea’s thesis.
changes and slowly adapting their internal structures in order to accommodate electronic submissions.

When developing new systems it is imperative to know who the intended market will be. Only then can the developers understand the business policies that govern the market and develop an accurate logical data model, and as a result implement a useful data model.

The Automated Submission System for Law Reviews will combine the best of what is offered by ExpressO and the Stanford Law Review Submission System. By making it the system convenient for both participating parties within the market and involving them in the development process the system is sure to thrive and attract many users. Involving them invites the intended users to accept the use of centralized repositories and delivery services, and realize the benefits it may bring them.

The Automated Submission System for Law Review Articles will prove to be extremely convenient and attractive for both, Law Reviews and Authors, since it is a centralized system that provides information for all parties involved. Efficiency and usability are the key; the system provides these two essential elements.
A Graphic User Interfaces

Figure 1: A LRSS Home Page
Figure 2: Log In Page
Automated Law Review Submission System

Search Submitted Abstracts

To search for abstracts, select a category from the drop down menu or type in a search phrase.

Please note: Do not type in any prepositions, and avoid words like 'a', 'and', 'or', 'the' and 'article' within a search phrase.

Search Phrase:  OR  Select a Category: 

Search  Back Home

Figure 3: Search Submitted Abstracts
The idea for ALRSS was developed in October 2003 as a Masters of Engineering thesis project. The founders of ALRSS are:

- Patricia Crusnley, MEngSB Civil Engineering
- David Gottlieb, MEngSB Computer Science
- Colleen O'Shea, MEngSB Civil Engineering

The motivation of ALRSS was to solve the law article submission problem. At the time, law professors would submit articles to every law review in which they wanted their article published. For most law professors, this would be around 60. This translated into 60 copies of the same article being submitted either electronically, fax, email or regular mail.

The most significant correction ALRSS made was to centralize all the data and information and automate all the necessary communications. This means that an Author only needs to upload their submission once and it will automatically be distributed to the Law Reviews they choose. Law Reviews may log onto the system to receive these submissions. If you are interested in more of the technical details, click on the links under the founders names to read their theses on ALRSS. Check back later for more updates about us!

Figure 4: About the System
Automated Law Review Submission System

Contact Us

ALESS is a system built on the requirements and needs of our users. If there is anything you would like to improve or anything that you enjoy, the developers would love to hear your comments.

Please fill in your email, comments, subject and optionally, your name, then click the "send" button to send your comments to us. Your feedback is invaluable to us and much appreciated. Any errors that you report will be given special consideration.

Name: (Optional)

Email:

Type of Comment:
- Suggestion
- Error
- Complaint

Enter Comments Here:

Discussions not available on http://gottlieb.mit.edu

Figure 5: Contact Us Page
Automated Law Review Submission System

Create New Law Author Account

Note: Please allow 24 hours of processing time before attempting to log in.

Required fields are marked with a (*)

<table>
<thead>
<tr>
<th>Field</th>
<th>Required Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Name:</td>
<td>*</td>
</tr>
<tr>
<td>Street Line 1:</td>
<td></td>
</tr>
<tr>
<td>Street Line 2 (Optional):</td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td></td>
</tr>
<tr>
<td>State:</td>
<td>*</td>
</tr>
<tr>
<td>Zip Code:</td>
<td>*</td>
</tr>
<tr>
<td>Phone Number:</td>
<td>*</td>
</tr>
<tr>
<td>Fax Number:</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6: Create New Law Author Account (1)
Welcome to ALRSS Microsoft Internet Exploier

Fax Number: (same format as phone number)
*Email:
*University: (Please select "None" if you are not affiliated with a university)
*Desired Username:
*Desired Password: (at least 6 characters)
*Repeat Password:

If you forget your password, this question will be asked of you. If you answer correctly, your password will be sent to the email address provided above.

*Please Select Your Question:
*Please Enter The Answer:

Submit Request Clear Request Back Home

The username and/or password combination that you will be assigned will not necessarily be the same as the ones you requested. ALRSS Development will try to give everyone their requested usernames and passwords.

Figure 7: Create New Law Author Account (2)
Welcome to ALRSS - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back M Search Favorites Media

Backward 34 blocked Forward Options

Address: http://gottlieb.mit.edu/ALRSS/ALRSS.aspx

Automated Law Review Submission System

Create New Law Review Account

Note: Please allow 24 hours of processing time before attempting to log in.

Continue Registering only if you are a Law Review Editor. Otherwise, please contact your Editor and allow them to set up an account.

Contact Editor Information

Note: The Contact Editor's Information will be displayed when an Author wants to contact the Law Review; therefore the information provided should correspond to that of the Law Review.

Required fields are marked with a (*).

<table>
<thead>
<tr>
<th>Field</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Editor Full Name</td>
<td>Text</td>
</tr>
<tr>
<td>Contact Editor Email</td>
<td>Text</td>
</tr>
<tr>
<td>Contact Editor Street Line 1</td>
<td>Text</td>
</tr>
<tr>
<td>Contact Editor Street Line 2</td>
<td>Text</td>
</tr>
<tr>
<td>Contact Editor City</td>
<td>Text</td>
</tr>
</tbody>
</table>

Note:
The Contact Editor can be changed once the account is established by an existing Editor account.
More Editors can be added by any Editor once the Law Review account is established.

Figure 8: Create New Law Review Account (1)
**Create New Law Review Account (2)**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Editor Phone</td>
<td></td>
</tr>
<tr>
<td>Contact Editor Fax</td>
<td></td>
</tr>
<tr>
<td>Desired Username</td>
<td></td>
</tr>
<tr>
<td>Desired Password</td>
<td>(at least 6 characters)</td>
</tr>
<tr>
<td>Repeat Password</td>
<td></td>
</tr>
<tr>
<td>Please Select Your Question</td>
<td>Mother's Maiden Name</td>
</tr>
<tr>
<td>Please Enter The Answer</td>
<td></td>
</tr>
</tbody>
</table>

**First Reviewer Information**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Reviewer Full Name</td>
<td>(e.g. John Smith, Mary Jane)</td>
</tr>
<tr>
<td>First Reviewer Email</td>
<td></td>
</tr>
<tr>
<td>First Reviewer Street Line 1</td>
<td></td>
</tr>
<tr>
<td>First Reviewer Street Line 2</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

A Reviewer must be added so that the account is enabled with workflow capabilities.

More Reviewers can be added by any Editor once the Law Review account is established.
Figure 10: Create New Law Review Account (3)
The username and/or password combination that you will be assigned will not necessarily be the same as the ones you requested. ALESS Development will try to give everyone their requested usernames and passwords.

Note:
If a Law Review is already registered with the same name, you will be notified using the Editor’s email provided.

Figure 11: Create New Law Review (4)
Figure 12: Change Password
Figure 13: View/Update Contact Information
Figure 14: Law Author Home Page
## Automated Law Review Submission System

### Submission Requirements and Copyright Agreements

Please read the corresponding documents before submitting to a Law Review. By submitting through the system to a particular Law Review, you are agreeing to the Copyright Agreement posted.

<table>
<thead>
<tr>
<th>Law Review</th>
<th>Submission Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oklahoma City University Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>Administrative Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>Akron Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>Akron Tax Journal</td>
<td>Requirements</td>
</tr>
<tr>
<td>Alaska Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>Harvard Latino Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>Harvard Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>MIT Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>Mobster Law Journal</td>
<td>Requirements</td>
</tr>
<tr>
<td>National Black Law Journal</td>
<td>Requirements</td>
</tr>
<tr>
<td>Natural Resources Journal</td>
<td>Requirements</td>
</tr>
<tr>
<td>Nebraska Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>New England Journal on Criminal and Civil Confinement</td>
<td>Requirements</td>
</tr>
<tr>
<td>New Mexico Law Review</td>
<td>Requirements</td>
</tr>
<tr>
<td>New York City Law Review</td>
<td>Requirements</td>
</tr>
</tbody>
</table>

Figure 15: Submission and Copyright Agreement
Figure 16: Submit Manuscript
Automated Law Review Submission System

View the Manuscripts ALRSS Has on File for You

<table>
<thead>
<tr>
<th>Title</th>
<th>Submit to Law Reviews</th>
<th>Cover Letter</th>
<th>Abstract</th>
<th>Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resume</td>
<td>Submit</td>
<td>Get Cover Letter</td>
<td>Get Abstract</td>
<td>Get Submission</td>
</tr>
<tr>
<td>Cover Letter</td>
<td>Submit</td>
<td>Get Cover Letter</td>
<td>Get Abstract</td>
<td>Get Submission</td>
</tr>
<tr>
<td>Yale Law Journal Requirements</td>
<td>Submit</td>
<td>Get Cover Letter</td>
<td>Get Abstract</td>
<td>Get Submission</td>
</tr>
<tr>
<td>Harvard Law Review Paper</td>
<td>Submit</td>
<td>Get Cover Letter</td>
<td>Get Abstract</td>
<td>Get Submission</td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>Submit</td>
<td>Get Cover Letter</td>
<td>Get Abstract</td>
<td>Get Submission</td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>Submit</td>
<td>Get Cover Letter</td>
<td>Get Abstract</td>
<td>Get Submission</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>Submit</td>
<td>Get Cover Letter</td>
<td>Get Abstract</td>
<td>Get Submission</td>
</tr>
</tbody>
</table>

Figure 17: View Manuscripts Already Submitted
Select Law Reviews for Manuscript Submission.

Click on (R) to view the Submission and Copyright Requirements of the Law Review.

Click on (C) to view the Contract Information of the Law Review.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Back to Top  Scroll Down to Submit

☐ Administrative Law Review (R) (C)
☐ Akron Law Review (R) (C)
☐ Akron Tax Journal (R) (C)
☐ Alaska Law Review (R) (C)

Figure 18: Submit Manuscript to Law Reviews (1)
Figure 4.14: Law Review submission page

Figure 19: Submit Manuscript to Law Reviews (2)
## Automated Law Review Submission System

### Submitted Manuscripts

<table>
<thead>
<tr>
<th>Title</th>
<th>Law Review</th>
<th>Manuscript Status</th>
<th>Withdraw Manuscript</th>
<th>Accept Publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover Letter</td>
<td>Stanford Law Review</td>
<td>Accepted with No Changes Required</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>Stanford Law Review</td>
<td>Accepted with No Changes Required</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>National Black Law Journal</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>Nebraska Law Review</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>New Mexico Law Review</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>Natural Resources Journal</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>New York Law School Law Review</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>New York University Journal of Legislation and Public Policy</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>New York University Environmental Law Journal</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>New York University Journal of International Law and Politics</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>Pace Law Review</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
<tr>
<td>Uploading documents</td>
<td>Penn State Law Review</td>
<td>Submitted to ARLSS</td>
<td>Withdraw</td>
<td>Accept</td>
</tr>
</tbody>
</table>

Figure 20: Check Status of Submitted Manuscripts
Figure 21: Request Expedited Reviews (1)
Automated Law Review Submission System

Request Expedited Reviews

Please input the date by which you would like a response

- May 8, 2004

- Natural Resources Journal
- New York Law School Law Review
- New York University Journal of Legislation and Public Policy

Request Expedited Review Back Home

Figure 22: Request Expedited Reviews (2)
Automated Law Review Submission System

Request Expedited Reviews

Please input the date by which you would like a response

May 6 2004

Get Accepting Reviews Back Home

Expedited Reviews Requested

Figure 23: Request Expedited Reviews (3)
Automated Law Review Submission System

Upload a New Version

- Cover Letter
- Observation of Education Experience

Get Accepting Reviews  Back Home

Figure 24: Upload a New Version
Figure 25: Law Review Editor Home Page
Automated Law Review Submission System

Submission Requirements and Copyright Agreement for Stanford Law Review

View Current Submission Requirements and Copyright Agreement

Upload New Submission Requirements and Copyright Agreement:

Browse

Submit  Cancel

Figure 26: View/Update Submission Requirements and Copyright Agreement
Automated Law Review Submission System

Add New Editors or Reviewers to the Law Review

Note: Modification of Reviewer Accounts Must Be Done By the Reviewer.

New Member Role
- Editor  ○ Reviewer

*Name:

*Email:

*Street Line 1:

Street Line 2:

*City:

*State (Characters Only):

Note:

An Editor is allowed to assign submissions and add new members in addition to the capabilities of a Reviewer.

A Reviewer can view the manuscripts and post review comments.

Here:

The Member’s information should be their home town address so that they can be contacted by those within the Law Review.

This information will NOT be provided to anyone outside of the Law Review.

Figure 27: Add New Editors or Reviewers to Law Review (1)
Figure 28: Add New Editors or Reviewers to Law Review (2)
### Automated Law Review Submission System

**View Current Members of the Law Review**

Note: Modification of Reviewer Accounts Must Be Done By the Reviewer.

<table>
<thead>
<tr>
<th>Username</th>
<th>Name</th>
<th>Role</th>
<th>Delete Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>brigham</td>
<td>Brigham Bowen</td>
<td>LawReviewEditor</td>
<td>Delete</td>
</tr>
<tr>
<td>gogolak</td>
<td>Adam Gogolak</td>
<td>LawReviewEditor</td>
<td>Delete</td>
</tr>
<tr>
<td>jasonfreedman</td>
<td>Jason Freedman</td>
<td>LawReviewReviewer</td>
<td>Delete</td>
</tr>
<tr>
<td>makanju</td>
<td>Anna Makanju</td>
<td>LawReviewEditor</td>
<td>Delete</td>
</tr>
<tr>
<td>nicola</td>
<td>Nicola Mrazek</td>
<td>LawReviewEditor</td>
<td>Delete</td>
</tr>
<tr>
<td>odesheoo</td>
<td>Jason Odesheoo</td>
<td>LawReviewEditor</td>
<td>Delete</td>
</tr>
</tbody>
</table>

Figure 29: View/Delete Members of the Law Review
**Automated Law Review Submission System**

**Control Workflow for Stanford Law Review**

<table>
<thead>
<tr>
<th>Title</th>
<th>Manuscript</th>
<th>Abstract</th>
<th>Cover Letter</th>
<th>Editor</th>
<th>Assigned Reviewer</th>
<th>Deadline</th>
<th>Status</th>
<th>Comments</th>
<th>Revised Deadline</th>
<th>Workflow From Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover Letter</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>View</td>
<td>Brigham Jason Freedman</td>
<td>4/24/04</td>
<td>Accepted with No Changes Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvard Law Review Paper</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>View</td>
<td>Odeshoo Jason Freedman</td>
<td>5/2/05</td>
<td>Accepted with Changes Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>View</td>
<td>Brigham Jason Freedman</td>
<td>5/2/05</td>
<td>Accepted with Changes Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resume</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>View</td>
<td>Nicola Jason Freedman</td>
<td>4/30/04</td>
<td>Submitted to ALRSS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weird</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>View</td>
<td>Brigham Jason Freedman</td>
<td>4/28/04</td>
<td>Submitted to ALRSS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yale Law Journal Requirements</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>View</td>
<td>Odeshoo Jason Freedman</td>
<td>5/4/04</td>
<td>Submitted to ALRSS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 30: Control Workflow (1)
Figure 31: Control Workflow (2)
### Automated Law Review Submission System

#### Control Workflow for Stanford Law Review

<table>
<thead>
<tr>
<th>Title</th>
<th>Manuscript</th>
<th>Abstract</th>
<th>Cover Letter</th>
<th>Editor In Charge</th>
<th>Assigned Reviewer</th>
<th>Editor Deadline</th>
<th>Reviewer Deadline</th>
<th>Comments</th>
<th>Status</th>
<th>Expected Review Deadline</th>
<th>From Author</th>
<th>Workflow</th>
</tr>
</thead>
</table>

Figure 32: Control Workflow - Personal
Figure 33: Search Submitted Manuscripts
Welcome to your ALRSS Law Review Reviewer page, Jason Freedman. You are a member of Stanford Law Review, which is affiliated with Stanford University.

There are 6 manuscripts that you still need to review.

Figure 34: Law Review Reviewer Home Page
<table>
<thead>
<tr>
<th>Manuscript Title</th>
<th>Manuscript</th>
<th>Abstract</th>
<th>Cover Letter</th>
<th>Editor In Charge</th>
<th>Reviewer Deadline</th>
<th>Comments</th>
<th>Edit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weird</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>brigham</td>
<td>4/4/2004</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Resume</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>nicola</td>
<td>4/29/2004</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Cover Letter</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>brigham</td>
<td>4/24/2004</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Yale Law Journal Requirements</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>odeshoo</td>
<td>4/28/2004</td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Harvard Law Review Paper</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>odeshoo</td>
<td></td>
<td>View</td>
<td>Edit</td>
</tr>
<tr>
<td>Observation of Education Experience</td>
<td>View</td>
<td>View</td>
<td>View Cover</td>
<td>brigham</td>
<td>4/28/2004</td>
<td>View</td>
<td>Edit</td>
</tr>
</tbody>
</table>

**THE ROLE OF THE LOCAL IN THE DOCTRINE AND DISCLOSURE OF RELIGIOUS LIBERTY**

**Figure 35: Manuscript Awaiting Review**
Bibliography


