

# Conflict of Interest Software Requirements Specification

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4/25/2022*

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0.1	2/18/2022	Students of Req & Spec, Spring 2022 - Nathan Blakenship, Matthew Gallagher, Tucker Kane, Brandon Mitchell	Introduction: business objectives, vision, context, environment
0.2	3/4/2022	Same as above	General factors: functions/features, users
0.3	3/23/2022	Same as above	Incorporate Etrieve into handling conflicts, added use cases and other details
0.4	4/10/2022	Same as above	Back and forth of management plans, form and conflict management plan statuses, dashboard information
0.5	4/25/2022	Same as above	Added functional requirements, quality attributes, data model and data dictionary

## Template Version History

<i>Version</i>	<i>Date</i>	<i>Authors</i>	<i>Comment</i>
3.0	7/21/2012	Frank Ackerman	Initiating standards versions
3.1	8/2/2012	Frank Ackerman	Some non-functional requirements definitions. Added Adaptability, Enhanceability, and Portability
3.2	1/17/2013	Frank Ackerman	Added usability comment
3.3	3/6/2013	Frank Ackerman	Added a bit more explanatory text and final section 8.
3.5	3/10/2018	Celia Schahczenski	Changed format of dates, rearranged, renamed items, removed Illustrative Use Cases, increased some explanations, added appendices including data and report sections.

***Montana Tech Software Engineering Students:***

These *Montana Tech* Method software engineering standards encapsulate Dr. Ackerman's decades of experience in the software industry, the IEEE software engineering standards, and many suggestions from various texts. They have gone through many revisions and additions over the last several years. They are part of your software engineering studies so that (1) you may have the experience of developing software to a standard (which you may find you need to do if you take a job that requires high reliability software), and so that (2) you will have the experience of developing high quality software. You are also invited to participate in the continuing evolution of these standards by studying them critically and making suggestions for their improvement and correction.

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# 1 Introduction

This section provides an overview of the *Conflict of Interest (COI) System* and *COI Etrieve*, the purpose of this document, and definitions, acronyms and references related to conflicts of interest.

## 1.1 Software Purpose and Scope

The purpose of the Conflict of Interest (COI) System and *COI Etrieve* is to help the *Research Office* handle conflicts of interest for *Montana Technological University* (subsequently known as *Montana Tech*). The *COI System* consists of an interactive user interface for *Research Office* personnel to view statistics and generate reports. *COI Etrieve* is a third-party application for collecting that data. These systems together will reduce user and staff input to less than 40 hours per year, guarantee a 95% or better completion rate for all faculty and staff, and generate annual reports. Unlike the previous systems used by the *Research Office*, this combined system accurately collects statistics, chooses correct recipients, saves time, educates users on the COI policy, and generates reports.

## 1.2 Purpose and Contents

The purpose of this Software Requirements Specification (SRS) is to give readers an understanding of *Montana Tech*'s goals and needs for a *COI System* and *COI Etrieve*. It provides a guide for future developers on the desired features, functionality and behaviors of these systems. This document can be used to design tests to ensure an implementation behaves as intended.

Customers sometimes find sample interfaces easier to understand than documents such as this SRS. Sample user interfaces demonstrate one way that the software could appear. This document goes further to tell precisely what functionality is needed.

This document does not attempt to tell how this software should be implemented except in those cases where the customers want the application to be developed in a particular way. Deciding exactly what a system should do, before deciding how it will do it, reduces development time considerably.

This SRS was developed by students in Software Requirement and Specification (ESOF 328), in the Spring 2022 at *Montana Tech*. It has been developed in part by faculty members, administrative personal and students. Thanks goes to Angela Lueking, Jill Yoder, Muhammad Abdul Basit UR Rahim, Trevor Osborne, and Ryan Hessler. The main audience of this document are the clients as well as the developers that will use this document to implement the system.

### 1.3 Definitions, Acronyms, Abbreviations and References

This section defines technical terms used in this document, as well as the expansions of acronyms and abbreviations, and important references.

#### 1.3.1 Definitions

This subsection contains definitions of terms used in this document.

Campus affiliation	Person of Interest's affiliation with <i>Montana Tech</i> – faculty, staff or student.
Conflict of interest and financial disclosure	Occurs "...when there is a potential divergence between the employee's private interests and professional obligations to <i>Montana Tech</i> , such that an independent observer might reasonably question whether the employee's professional actions or decisions could be influenced by considerations of personal gain (financial or otherwise)." This definition comes from the <i>Conflict of Interest and Financial Disclosure Policy</i> .
Conflict status	Each COI form, for each year, will have one of the following statuses. The status is determined by the boxes checked on the COI form: <ul style="list-style-type: none"> <li>• No Conflict, no boxes are checked</li> <li>• Minor Conflict, one or more boxes are checked, but boxes 1-4, 6 and 7 are not checked.</li> <li>• Major Conflict, a check appears in box 1-4, 6 or 7</li> </ul>
Person of Interest	Anyone who is required to complete a COI form.
<i>Single Sign-On</i>	Authentication system used for <i>Montana Tech</i> applications.
Status of COI form	COI forms can have one of the following distinct statuses: <ul style="list-style-type: none"> <li>• <b>Not Started:</b> The Person of Interest has not started or modified their COI form.</li> <li>• <b>In Progress:</b> The Person of Interest has made changes to their COI form but hasn't submitted it yet.</li> <li>• <b>Submitted:</b> The Person of Interest has signed and submitted their COI form for review by personnel in the <i>Research Office</i>.</li> <li>• <b>Compliant:</b> The COI form has been reviewed and signed by the appropriate parties.</li> </ul>
Status of management plan	Management plans can have one of the following distinct statuses:

	<ul style="list-style-type: none"> <li>• <b>N/A:</b> The Person of Interest has not submitted their COI form yet, so the management plan's state is currently not applicable.</li> <li>• <b>No Plan Needed:</b> No conflicts exist, so no conflict management plan is needed.</li> <li>• <b>Plan Required:</b> A management plan needs to be created manually by <i>Research Office</i> personnel due to one or more significant, unique or complicated conflicts.</li> <li>• <b>In Review:</b> The management plan is waiting to be reviewed by <i>Research Office</i> personnel.</li> <li>• <b>Pending:</b> A management plan is available to the Person of Interest and is awaiting their signature.</li> <li>• <b>Submitted:</b> The Person of Interest has signed their management plan and has submitted it.</li> <li>• <b>Complete:</b> The management plan has been signed by both the Person of Interest and the appropriate authority associated with the <i>Research Office</i>.</li> <li>• <b>Compliant:</b> The COI form has been reviewed and signed by the appropriate parties.</li> </ul>
<i>Technology Services</i>	The group responsible for <i>Etrieve</i> and campus computing at <i>Montana Tech</i>

Table 1.1 Definitions

### 1.3.2 Acronyms and Abbreviations

Acronyms and abbreviations found in this document are included in this subsection.

BOR	Board of Regents of the Montana University System
COI	Conflict of Interest
FTE	Full-Time Equivalent, a designation of workload for faculty members or students. 1.0 FTE is equivalent to 40 hours. Students are considered to be full-time at 0.5 FTE or higher.
PoI	Person of Interest, anyone who will be using the <i>COI System</i> to sign a conflict of interest form
SRS	Software Requirements Specification, term used for this document
SSO	Single Sign-On, the secure login system commonly used for <i>Montana Tech</i> applications

Table 1.2 Acronyms

### 1.3.3 References

References relevant to the *COI System* are given in this subsection.

Banner

<https://www.ellucian.com/solutions/ellucian-banner-human-resources>



*Conflict of Interest and Financial Disclosure Policy (1998), Montana Technological University,*

<https://www.mtech.edu/research/files/conflict-interest-financial-disclosure.pdf>

*Conflict of Interest Disclosure Statement and Certification Portal, Montana Technological University,*

<https://mtlbsso.mtech.edu/idp/profile/cas/login?execution=e1s1>

*Etrieve*

<https://www.softdocs.com/etrieve>

*Montana Technological University Faculty/Staff Handbook*

<https://www.mtech.edu/facultystaff/fac-staff-handbook-acc.pdf>

## 2 General Factors

A high-level overview of what *COI Etrieve* and the *COI System* will do, their running environments, who will use them, their dependencies, along with assumptions made about them are included in this section.

### 2.1 Product Perspective

This system is meant to serve as a replacement to the current COI process. In addition, this project will be dependent on the *Etrieve*, *Banner* and *Single Sign-On* systems of *Montana Tech*.

*COI Etrieve* will enable users to:

- **Educate:** *COI Etrieve* will educate users on what is a conflict of interest, the importance of disclosing potential conflicts, and the consequences of not properly disclosing information on the form.
- **Create:** *COI Etrieve* will enable *People of Interest* to complete, sign, and submit COI forms online, approving the document with their digital signature.
- **Create management plans:** *COI Etrieve* will generate templated management in situations where a conflict is minor, common, or simple. *COI Etrieve* will facilitate the creation of management plans by *Research Office* personnel.
- **Sign forms:** *COI Etrieve* will allow certain individuals to sign off on COI forms and management plans.

The *COI System* will:

- **Manage forms:** The *COI System* will allow *Research Office* personnel to easily see the completion status of all COI forms.
- **Aid in conflict management:** The *COI System* will allow *Research Office* personnel to easily see who has potential conflicts, the status of those conflicts, and to record how those conflicts will be managed.
- **Filter:** Filter COI forms by their status and other relevant information.
- **Report:** The *COI System* will facilitate the creation of yearly reports on the data gathered from the signed COI forms to submit to *Montana Tech's Board of Regents*. Status reports can also be made at any time.

### 2.2 Environmental Conditions

The *Montana Board of Regents* requires the submission of annual conflict of interest reports from each of its universities, including *Montana Tech*. *Banner* holds the information necessary to uniquely identify employees and graduate students engaged in research. *Etrieve* will be used to create and complete COI and management plan forms. *Microsoft Outlook* is the most likely tool to be used to distribute links to *Etrieve* as each employee and student has their own unique email address. *COI System* authorization will

be *Montana Tech's Single Sign-On (SSO) System*. Figure 2.1 COI System Ecosystem Map shows the interactions of the *COI System*.

Context diagrams show the context in which a system will operate. Two context diagrams are shown below: Figure 2.2 *COI Etrieve* Context Diagram and Figure 2.3 *COI System* Context Diagram.

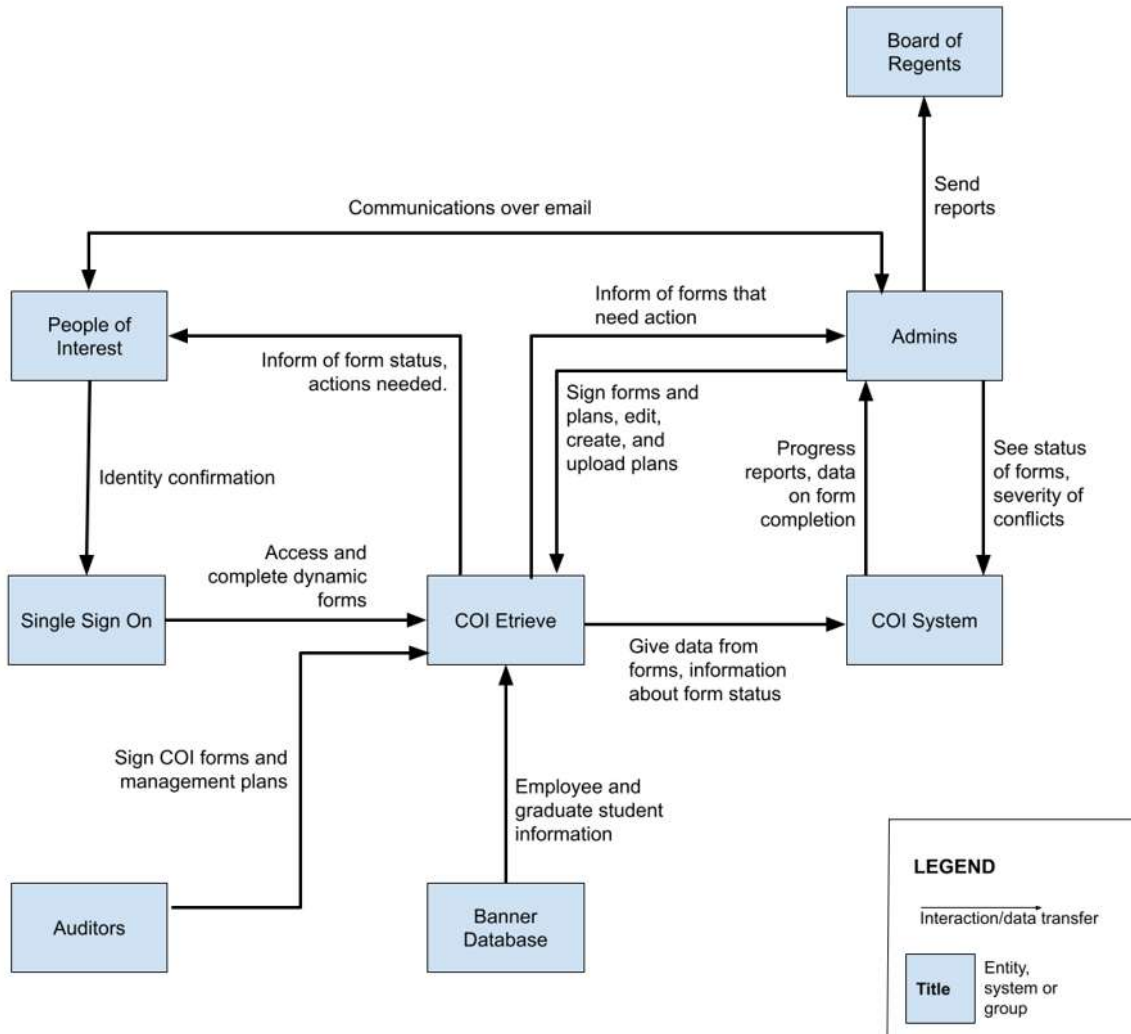
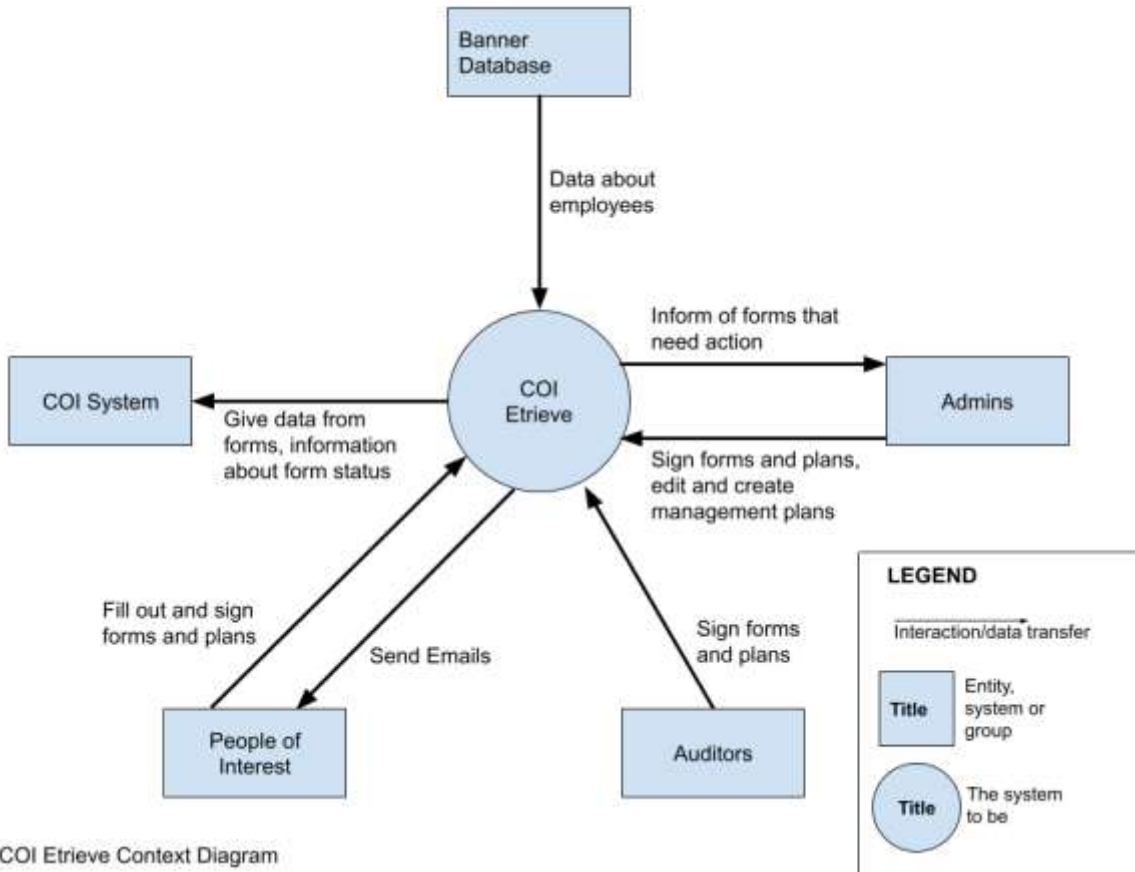
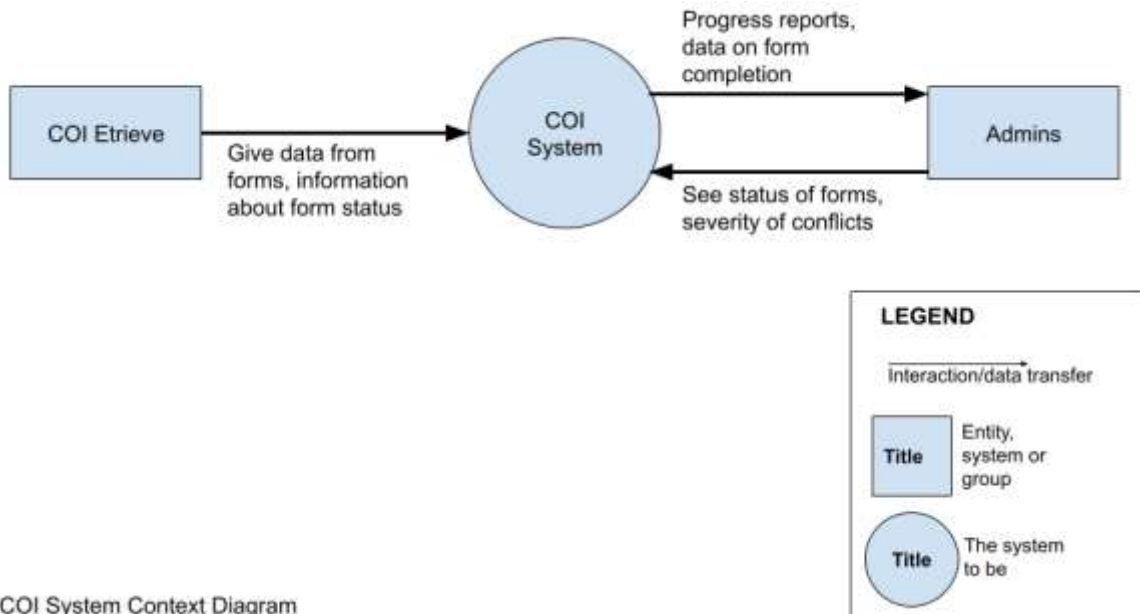


Figure 2.1 COI System Ecosystem Map



COI Etrieve Context Diagram  
 Figure 2.2 COI Etrieve Context Diagram



COI System Context Diagram  
 Figure 2.3 COI System Context Diagram

## 2.3 User Characteristic

Three types of users are involved in handling conflicts of interests. Some of these users interact with *COI Etrieve* (see Table 2.1 *COI Etrieve* User Classes), while others interact with *the COI System* (see Table 2.2 *COI System* User Classes).

Although the system will generate reports for the Board of Regents to comply with state laws, the Board of Regents will never interact with the system directly or indirectly. They will only receive the report the system generates. As such, they are not represented in the table.

User Class	Description
Auditor	An external individual at the <i>University of Montana</i> who only has the ability to sign a select few COI forms.
Admin	Individuals in the <i>Research Office</i> that can approve, edit, and create management plans. They can also sign COI forms and management plans.
Person of Interest	Anyone who is required to complete a COI form. The person completes and submits COI forms, as well as providing an explanation for any conflicts. (Note that an Admin user will also be a <i>Person of Interest</i> , as Admins need to sign COI forms as well.)

Table 2.1 *COI Etrieve* User Classes

User Class	Description
Admin	Individuals in the <i>Research Office</i> that can review other's forms, their status, and the severity of their conflict (if one exists). They will also be able to generate status reports and yearly reports to comply with state law.

Table 2.2 *COI System* User Classes

## 2.4 Dependencies

The *COI System* is dependent on *Etrieve* through which all COI forms and conflict management plans will be populated and signed. After their completion, these forms will be stored in the *COI System*, from which Admins can view them and generate statistics and reports.

The *COI System* is dependent on the *Single Sign-On System*, of *Montana Tech*.

The system will be dependent on *Banner* for the legal names of employees and graduate students engaged in research.

## 2.5 Assumptions

Some assumptions for this system are:

- Auditors will not have any interaction with the *COI System*. They will only interact with *COI Etrieve* to sign a select few forms.
- *People of Interest* are employees with greater than one-half FTE or graduate students engaged in research.
- All actual conflicts of interest will be managed by the *Research Office*. The *COI System* will not manage conflicts, it simply stores information on conflicts and how those conflicts will be managed.
- This system will be available on any computer with a modern web browser and Internet connectivity.
- The Vice Chancellor of Research is unable to sign their own COI form and is also unable to sign the forms of the Chancellor and Provost. As such, someone from *The University of Montana* must assume the role of Auditor and sign their forms.

### 3 Use Cases

This subsection contains use cases of the proposed system. Some of these use cases are implemented as part of *COI Etrieve*, while others are for the *COI System*.

Three types of users are involved in handling conflicts of interests. Some of these users interact with *COI Etrieve* (see Table 2.1 *COI Etrieve* User Classes), while others interact with *the COI System* (see Table 2.2 *COI System* User Classes).

#### 3.1 *COI Etrieve* Actor

This section lists the actors that will interact with the *COI Etrieve*, along with the interactions that these actors may perform. An actor is a person, or other entity external to the software system, who may interact with the proposed system to accomplish tasks.

Primary Actor	Use Cases
Auditor	Approve management plans and overall compliance
Admin	Create/edit management plans, and approve management plans and overall compliance
Person of Interest	Fill out, edit form, and sign forms and management plans

Table 3.1 Actors Table

#### 3.2 *COI Etrieve* Use Cases

The following use cases outline, from a user's point of view, the *COI Etrieve* behavior as it responds to user interactions. Each use case is represented as a sequence of steps, beginning with a user's goal, and ending when that goal is fulfilled, or the user has exited the use case.

The use cases are given in the order in which they occur.

##### 1.1.1 Fill out/ Edit Form

Created By:	Nathan Blankenship	Last Updated By:	Class
Date Created:	03/21/2021	Date Last Updated:	4/22/2022
Actors:	Person of Interest		
Description:	User fills out, submits, and signs a COI form		
Preconditions:	The User needs to complete a COI form		
Postconditions:	<ul style="list-style-type: none"> <li>User's form is complete.</li> </ul>		

	<ul style="list-style-type: none"> <li>• User has signed their form.</li> </ul>
Normal Flow:	<p><b>1.0 Create Form</b></p> <ol style="list-style-type: none"> <li>1. The user visits the system from the annual email or going to the COI portal.</li> <li>1. The user is directed to MTech <i>Single Sign-On</i>, where they log in.</li> <li>2. The system informs the user of their rights and responsibilities in disclosing conflicts of interest through the terms of service.</li> <li>3. The system informs the user of their rights and responsibilities in disclosing conflicts of interest through the terms of service.</li> <li>4. The system asks if the person considers themselves to be grant active.</li> <li>5. The user responds.</li> <li>6. The system asks if the person has any conflicts.</li> <li>7. The user responds negatively.</li> <li>8. The system requests a form signature from the user.</li> <li>9. The user signs the form.</li> <li>10. The system receives their form and updates its status.</li> </ol>
Alternative Flows:	<p><b>1.1 User decides to save the partially completed form, and complete it later</b></p> <ol style="list-style-type: none"> <li>1. The user fills out the form partially and then indicates they would like to stop editing.</li> <li>2. The system prompts for confirmation, saves the form, and then exits.</li> <li>3. The user returns to the system, either through another email prompt or via <i>Single Sign-On</i>.</li> <li>4. The system loads the unfinished form.</li> <li>5. Return to step 5.</li> </ol> <p><b>1.3 User has potential conflicts of interest (branch at step 7)</b></p> <ol style="list-style-type: none"> <li>1. The system prompts for responses to the various conflict of interest questions.</li> <li>2. The user responds.</li> <li>3. The system requests a form signature from the user.</li> <li>4. The user signs the form.</li> <li>5. The system receives their form and updates its status.</li> <li>6. In this case, the “Aid in Creating a Management Plan” use case occurs.</li> </ol>
Exceptions:	<p><b>E.1 Terms and Conditions are not Agreed to</b> If for any reason a PoI chooses not to accept the systems Terms of Service, the system will deny the user access to sign the form.</p> <p><b>E.2 Form not signed</b> If for any reason a PoI chooses not to sign the form, the form will remain in the “in progress” state.</p>



Includes/Extends:	None
Priority:	Imperative
Frequency of Use:	High
Business Rules:	BR-1, BR-3
Special Requirements:	The COI forms of the <i>Vice Chancellor of Research, Chancellor, and Provost</i> (and possibly others) must be signed by the appropriate person at the <i>University of Montana</i> assuming the role of auditor. The PoI must sign using their legal name as defined in <i>Banner</i> .
Assumptions:	None.
Notes and Issues:	None.

### 1.1.2 Create Management Plan

Created By:	Brandon Mitchell	Last Updated By:	Class
Date Created:	4/5/2022	Date Last Updated:	4/22/2022
Actors:	Admin		
Description:	Admin creates a management plan in <i>Etrieve</i> , or in a word processor and upload them to <i>Etrieve</i> .		
Preconditions:	<ul style="list-style-type: none"> <li>The user is currently signed in.</li> <li>A PoI has completed their COI form and one or more of their conflicts requires a management plan.</li> </ul>		
Postconditions:	The PoI will have access to their management plan.		
Normal Flow:	<b>1.0 Upload Management Plan</b> <ol style="list-style-type: none"> <li>The user accesses a PoI's management plan.</li> <li>The system displays the auto-generated management plan.</li> <li>The user is able to make edits and additions as they see fit.</li> <li>The system records the edits and additions.</li> <li>The system sends the form to the associated PoI.</li> </ol>		
Alternative Flows:	<b>1.1 Create Management Plan (branch after step 1)</b> <ol style="list-style-type: none"> <li>The system indicated no plan has been created.</li> <li>Return to step 3.</li> </ol> <b>1.2 Send to Another Admin (branch after step 4)</b> <ol style="list-style-type: none"> <li>The user chooses to send the form to another Admin for review.</li> <li>The system prompts for the user to select the recipients.</li> <li>The user selects the recipients and sends the form.</li> <li>The system sends the form to the selected recipients.</li> </ol>		
Exceptions:	None		
Includes/Extends:	None		
Priority:	Critical		
Frequency of Use:	Used whenever a management plan needs to be sent out.		
Business Rules:	None.		
Special Requirements:	While an Admin can create and edit their own management plan, an external person is required to sign off on that management plan.		
Assumptions:	None.		

Notes and Issues:	None.
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### 3.2.1 Approve Management Plans

Created By:	Tucker Kane	Last Updated By:	Class
Date Created:	03/21/2022	Date Last Updated:	4/10/2022
Actors:	Auditor		
Description:	User uses <i>COI Etrieve</i> to sign off on completed COI forms or management plans.		
Preconditions:	<ul style="list-style-type: none"> <li>• A Person of Interest has completed their COI form or management plan and that form is ready for approval.</li> <li>• The user is signed in.</li> </ul>		
Postconditions:	The COI form for the user has been approved or rejected.		
Normal Flow:	<b>1.1 Sign COI form or management plan</b> <ol style="list-style-type: none"> <li>1. The system presents the user with submissions that need signatures.</li> <li>2. The user selects a submission, reviews, it, and then signs it to approve it.</li> <li>3. The system records their signature and updates the submission status.</li> </ol>		
Alternative Flows:	<b>1.2 Form or plan is rejected (branch after step 1)</b> <ol style="list-style-type: none"> <li>1. The user selects a submission, reviews, it, and rejects it.</li> <li>2. The user attaches comments explaining their rational behind the rejection.</li> <li>3. The system records the rejection and comments and updates the submission status.</li> <li>4. The system informs the Person of Interest their submission was rejected and needs to be modified.</li> </ol>		
Exceptions:	None		
Includes/Extends:	None		
Priority:	Critical		
Frequency of Use:	Used whenever a specific PoI (may also be administrator) indicates a possible conflict exists.		
Business Rules:	BR-1, BR-2, BR-3, BR-4		
Special Requirements:	None.		
Assumptions:	None.		
Notes and Issues:	The Auditor will be the last one to sign a COI form or management plan.		

### 3.3 COI System Actor

This section lists the actors that will interact with the *COI System*, along with the interactions that these actors may perform.

Primary Actor	Use Cases
Admin	Dashboard Use Case

Table 3.1 Actors Table

### 3.4 COI System Use Cases

The section outlines, from a user's point of view, the *COI System* behavior as it responds to user interactions.

#### 3.4.1 Dashboard Use Case

Created By:	Matthew Gallagher	Last Updated By:	Class
Date Created:	3/6/2022	Date Last Updated:	4/10/2022
Actors:	Admin		
Description:	Enable users to discover information about the progress of completing COI forms and information about conflicts in general.		
Preconditions:	The user is signed into the <i>COI System</i> .		
Postconditions:	None, that is, no changes have been made to the COI system data.		
Normal Flow:	<p><b>1.0 Description Phrase</b></p> <ol style="list-style-type: none"> <li>1. The user navigates to the dashboard.</li> <li>2. The system displays the status of COI forms and other relevant information.</li> <li>3. The user can select various filter criteria to learn about conflicts and the status of the forms, as well as generating an annual report.</li> <li>4. The system updates the displayed forms to comply with the filters.</li> </ol>		
Alternative Flow:	<p><b>1.1 Search (branch after 2)</b></p> <ol style="list-style-type: none"> <li>1. The user enters a name to search for.</li> <li>2. The system updates the displayed forms to show any matching forms.</li> </ol>		
Exceptions:	None		
Includes/Excludes:	None		
Priority:	Critical		
Frequency of Use:	Used frequently by the Admins to monitor status of COI forms		
Business Rules:	None		
Special Requirements:	None		
Assumptions:	None		

Notes and Issues:	None
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## 4 Specific Requirements

The following section describes how the *COI System* is to behave, characteristics of that system (quality attributes) and constraints as to the system's development (non-functional requirements). The details within this section are defined as individual, specific requirements, clearly identified for tracking.

### 4.1 Functional Requirements

The functional requirements discussed in this section cover the *COI System*. No requirements are given for *COI Etrieve* as *Etrieve* is a commercial off-the-shelf product that will simply be tailored for this project.

Functional requirements are tagged with a priority to indicate its importance: low, medium, high, and critical. Rational is given for each requirement, making the role of the requirement easier to determine in the event that the system is changed.

#### 4.1.1 Report Not Started

Based on filters selected (grant-active, not grant active; faculty, staff and/or student; not started, not completed, compliant; no conflict, minor conflict, major conflict) the system shall return the name, department/office, campus affiliation, progress, conflict status, phone and email of those PoIs who haven't started their COI form.

Priority: High

Rationale: Not-started forms can turn into a legal liability. The *Research Office* needs to know who has yet to complete the form so they can follow up if needed.

#### 4.1.2 Report Started, Not Compliant

Similar to 4.1.1, with "haven't started their COI form" changed to "have started their COI form but are not yet compliant".

#### 4.1.3 Report Compliant

Similar to 4.1.1, with "haven't started their COI form" changed to "are compliant".

#### 4.1.4 Report No Conflict

Similar to 4.1.1, with "haven't started their COI form" changed to "are compliant and have reported no conflict".

#### 4.1.5 Report Minor Conflict

Similar to 4.1.1, with "haven't started their COI form" changed to "are compliant and have reported only minor conflicts".

#### 4.1.6 Report Major Conflict

Similar to 4.1.1, with “haven’t started their COI form” changed to “are compliant and have reported one or more major conflicts”.

#### **4.1.7 Report Grant-Active**

Similar to 4.1.1, with “haven’t started their COI form” changed to “are members of a grant-active department”.

#### **4.1.8 Report Not Grant-Active**

Similar to 4.1.1, with “haven’t started their COI form” changed to “are not members of a grant-active department”.

#### **4.1.9 Report Numbers**

Based on filters selected (faculty, staff and/or student), the system shall return the number of PoI in that category.

Priority: High

Rationale: The *Research Office* needs to be able to quickly see how many conflict of interest forms they need to complete.

#### **4.1.10 Import COI Information**

The system shall import current year COI information from *Technology Services* on a daily basis. This information will include: PoI names, employment type (faculty, staff or student), department/group/office, completion status of their COI form (not started, started-not-compliant, compliant), form conflict boxes checked and management plan documents.

Priority: Medium

Rationale: All information for the *COI System* comes from information which *Etrieve* collects. As *Etrieve* collects information, the *COI System* data will become out of date.

#### **4.1.11 Generate Statistics for the Annual COI Report**

Given a year, the system shall return the number of PoI who were sent the COI form in that year, the number of these who are compliant, the total number of conflicts disclosed and the number of employees who have conflict management plans.

Priority: Low

Rationale: An annual conflict of interest report must be submitted every year, and the above information is required for that report.

#### **4.1.12 Update Grant-Active**

The system shall allow the user to update which departments are considered grant-active, as well as change the names of those departments.

Priority: Low

Rationale: Departments may get merged, removed, or expanded, so a way to change which departments are grant-active should be provided (i.e., the department names should not be hardcoded).

## 4.2 Quality Attributes

Criteria used to judge the operation of the system appears in this section.

### 4.2.1 Availability

The *COI System* downtime will not exceed 1 hour every two weeks for maintenance or any other reason. Any downtime for maintenance should occur late into the night or early in the morning so as to have minimum impact. Most importantly, it should be available towards the end of the year so the Research Office can generate any necessary reports and complete other activities.

### 4.2.2 Human Factors

The *COI System* and *Etrieve* shall be compatible with text-to-speech narrators and shall accommodate color blindness.

### 4.2.3 Maintainability

Although it is not expected that the COI form will change in the near future, it is possible that updates to the form may be needed should the *Board of Regents* COI policy change. As such, the system should be developed in such a way, that changing the form does not require major code changes to the *COI System*.

The *COI System* is expected to be independent of the system that *Etrieve* uses to collect information.

### 4.2.4 Security

Due to the sensitive nature of the data being stored, the system shall use the *Single Sign-On* feature of *Technology Services* to maintain security.

### 4.2.5 Usability

All users of the *COI System* should find it fairly easy to use and give the system a positive overall usability rating.

## 4.3 Non-Functional Requirements Which Are Not Quality Attributes

The purpose of this subsection is to specific non-functional criteria such as platform, deployment, interface, design, and document requirements.

#### **4.3.1.1 Communications**

The *COI System* will import its information from *Technology Services*' database, not directly from *Etrieve*. *Technology Services*' database will be up-to-date at all times with the data from *Etrieve*, and the information pulled will be the various fields from the form. As to not negatively impact availability, the *COI System* should pull from the *Technology Services*' database during periods of downtime

## **5 Future Enhancements**

It is not expected that there will be any future enhancements to this product.

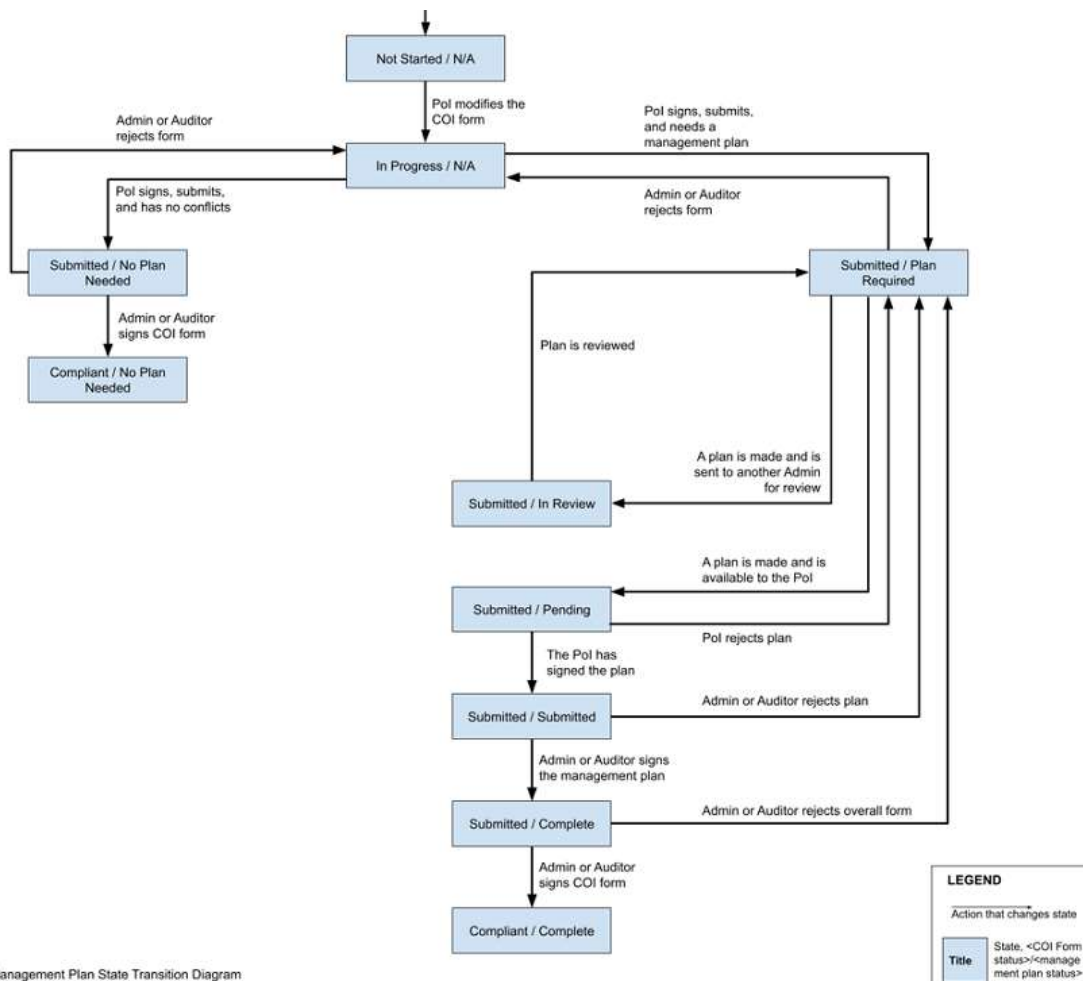


# Appendices

These appendices provide detailed information to aid in understanding the *COI Etrieve* and the *COI System*.

## Appendix A: Analysis Models

Models help to clarify the requirements. The following model shows the states of a COI form and a conflict management plan and the events that take the plan from one state to another. The states are show together, and any state combination not represented is not possible.



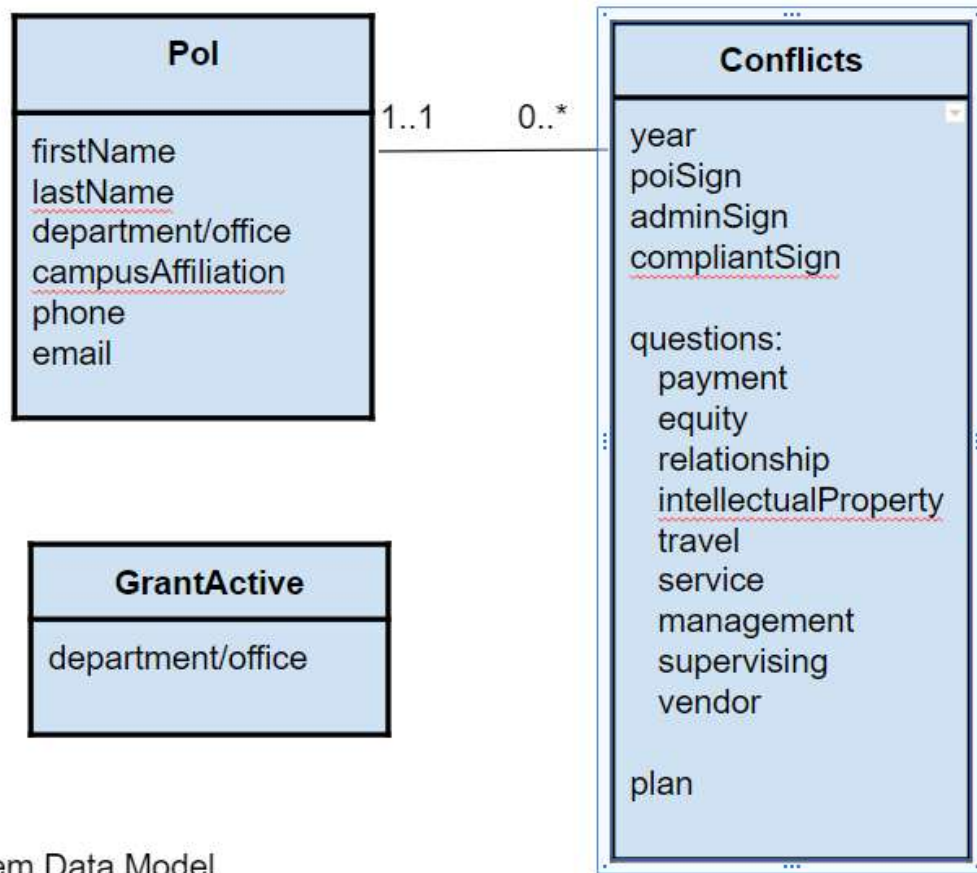
Forms / Management Plan State Transition Diagram

Figure 0.1 Form and Management Plan State Transition Diagram

## Appendix B: Data Model and Data Dictionary

The following UML data model serves to anticipate the needed data elements for the *COI System*. This is a conceptual data model, so doesn't include primary or foreign keys. *COI System* data will be imported from *Etrieve*, via *Technology Services Etrieve* data captures, so is unlikely to be normalized.

The PoI table is only expected to contain the current department/office, campus affiliation, phone and email of the PoI.



COI System Data Model

Figure 0.1 COI System Data Model

The data dictionary defines the composition of data structures and the meaning, data type, length, format, and allowed values for the data elements that make up those structures.

Data Element	Description	Composition or Data type	Length	Values
firstName	The PoI's first name	string	35	
lastName	The PoI's last name	string	35	
department/office	The PoI's department	string	35	Chemistry, et al.
phone	The PoI's work phone	string	15	
email	The PoI's school email	string	30	
PoI	The PoI and their associated attributes	Composition: firstName lastName department/office phone email		
GrantActive	Contains a set of all grant active departments	Composition: department/office		
year	The year associated with the COI form	int	4	2022, ect.
poiFormSign	A bool indicating the form was signed by the PoI	bool	1	Default value of false
adminFormSign	A bool indicating the form was signed by the Admin or Auditor	bool	1	Default value of false
poiPlanSign	A bool indicating the plan was signed by the PoI	bool	1	Default value of false
adminPlanSign	A bool indicating the plan was signed by the Admin or Auditor	bool	1	Default value of false
payment	A bool indicated the relevant question was checked	bool	1	Default value of false
equity	A bool indicated the relevant question was checked	bool	1	Default value of false
relationship	A bool indicated the relevant question was checked	bool	1	Default value of false
intellectualProperty	A bool indicated the relevant question was checked	bool	1	Default value of false

travel	A bool indicated the relevant question was checked	bool	1	Default value of false
service	A bool indicated the relevant question was checked	bool	1	Default value of false
management	A bool indicated the relevant question was checked	bool	1	Default value of false
supervising	A bool indicated the relevant question was checked	bool	1	Default value of false
vendor	A bool indicated the relevant question was checked	bool	1	Default value of false
plan	The PoI's associated plan, a filename	string	200	
Questions	A collection of the associated questions	Composition: payment equity relationship intellectualProperty travel service management supervising vendor		
Conflicts	A collection of attributes to track conflicts	Composition: year poiSign adminSign compliantSign questions plan		

Table 0.1 COI System Data Dictionary

## Appendix C: Report Specification

Yearly reports are required to be generated and sent to the Montana Board of Regents in compliance with the 1998 COI Policies. This report is to include:

1. The total number of individuals who were required to fill out a COI form

2. The number of people that actually completed and submitted the form,
3. The Number of conflicts disclosed (and how they differed from last year's response)
4. A summary of the conflicts
5. How many conflicts are being managed through written plans
6. The number of conflicts eliminated

The 2021 yearly report below serves as a great example what needs to be included and how everything should be formatted.

---

### **ANNUAL CONFLICT OF INTEREST REPORT**

January 1, 2021 – December 31, 2021

#### **Montana Technological University**

This report is submitted in compliance with BOR Policy 770.

Montana Tech has 381 employees who were required to submit conflict of interest (COI) disclosures. As of 12/27/2021, over 93% of these employees had submitted their COI disclosure forms. Two employees with a missing form has since retired. Forms from 6 additional employees, who started subsequent to the listing date or who worked less than half time have also been received, reviewed and included in the tallies below.

#### **A. Number of conflicts disclosed:**

1. 4 employees reported a potential conflict of interest not previously disclosed.
2. 39 employees reported a potential conflict of interest which had been duly disclosed previously and there had been no change which required an updated disclosure.
3. The remaining employees required to report reported no relationships or financial interests that are or might reasonably be perceived to be in conflict with their duties and responsibilities at Montana Tech.

#### **B. Summary of nature of conflicts:**

1. Potential conflicts because of a relative's employment.
2. Potential conflicts relating to consulting or other outside work.
3. Potential conflicts related to serving on outside committees
4. Potential conflicts related to ownership of stock, or financial interest in outside Companies

#### **C. Number of conflicts being managed through written plans:**

Montana Tech is managing conflicts for 31 employees through written conflict management plans to be sent out in January 2022.

After review, the office for Vice Chancellor of Research will provide written responses to all. potential conflict disclosures, concluding either (1) that there was no potential for conflict, (2) that the potential conflict was so remote that no action was required, or (3) that a conflict management plan was required.

#### **D. Number of conflicts eliminated:**

In 2021, Montana Tech did not formally require any employee to eliminate a potential conflict.

Figure 0.5 *TechAnnual\_COI\_Report\_2021.pdf*

## Appendix D: Business Rules

Several business rules relevant to the *COI System* are identified in this appendix.

<b>ID</b>	<b>Rule Definition</b>	<b>Type of Rule</b>	<b>Static or Dynamic</b>	<b>Source</b>
BR-1	Every conflict form (aside from the Chancellor's and the Vice Chancellor of Research) must be signed by the Vice Chancellor of Research and the person filling out the form in order to be considered complete.	Fact	Static	COI Policy, 1998
BR-2	Employees working over one-half FTE a week, along with graduate students engaged in research, must complete a COI form.	Fact	Static	<i>Montana Tech Faculty/Staff Handbook</i>
BR-3	Compliance of COI policy is required by all full-time and part-time <i>Montana Tech</i> employees, including students who receive compensation from <i>Montana Tech</i> and students or others who design, conduct, or report research, educational, or public service activities for <i>Montana Tech</i>	Fact	Static	<i>Montana Tech Faculty/Staff Handbook</i>
BR-4	Research administrators cannot review and approve their own COI form	Fact	Static	COI Policy, 1998

Table 0.1 Business Rules

## Appendix E: Sample User Interface

The following is a sample user interface of the COI system. Users will be able to generate reports, filter by status, and view a form's current status.

The image shows a UI prototype for a COI dashboard. At the top left, it says "COI Dashboard Prototype". To the right of this is a button labeled "Annual Report". Below the "Annual Report" button is a search bar with the text "Search" and a magnifying glass icon. To the right of the search bar is a "Filters" section. The filters are organized into two columns. The first column contains: Faculty (153), Grant-Active (66), Not Grant-Active (236), and Student (77). The second column contains: Not Started (102), Not Completed (50), Completed (150), No Conflict (200), Minor Conflict (52), and Major Conflict (50). Below the filters, there is a "Total (302)" label. The main content area is a table with 18 rows, each containing the text "Person of Interest".

Figure 0.6 UI Prototype

## Appendix F: Issues

*[This optional appendix is a dynamic list of the open requirements issues that remain to be resolved, including TBDs, pending.]*