

# Hockey Club Website and Management Solution

## FUNCTIONAL REQUIREMENTS SPECIFICATION

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## EXECUTIVE SUMMARY

The Hockey Club Website and Management Solution Functional Requirements Specification sets out the requirements of a solution that will be developed to assist in the management of the hockey club.

A preliminary set of requirements was identified during the construction of the project business case; the aim of this document is to build on this initial list and identify and provide detail on the key functionality that the solution needs to provide, as well as the details of how the solution will be developed to meet these requirements. As such, a number of requirements have been modified or added since the business case was written; these changes have been noted.

The following are the key high-level functional requirements that have been identified:

1. Register members
2. Manage content
3. View content
4. Manage mailing lists
5. Manage master data

A number of informational and non-functional requirements have also been identified and are detailed. All requirements were ascertained through interviews with various members of the hockey club Committee.

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# 1. INTRODUCTION

## 1.1. Purpose

The purpose of this document is to:

- Set out business's requirements for the solution in terms of:
  - Business functionality required.
  - Business processes involved.
  - Business rules and exceptions.
  - Business informational needs.
- Supply information regarding the non-functional requirements.
- Identify what will be provided as part of the solution to the business.

## 1.2. Definitions, Acronyms and Abbreviations

The following terms, acronyms and abbreviations have been used in this document:

Term	Description
CMS	Content management system
SEO	Search engine optimisation

**Table 1: Terms, acronyms and abbreviations list**

## 1.3. Related Documents

The following documents contain supporting information and may be read in conjunction with this document:

Document Description	Author	File Name
Hockey Club Website and Management Solution Business Case v1.0	Marc Pelteret	Business Case_Hockey Club Website and Management Solution v1.0.docx
SA Postal Codes List		SA Postal Codes.xls
Example fixture list		Fixtures 2012 version 2.0.xls

**Table 2: Related documents list**

## 1.4. Outstanding Issues

The following issues still need to be resolved:

Issue Number	Description	Person/s to Resolve
Issue 1	The declaration that the member agrees to during registration still needs to be finalised. It will include a liability waiver, acknowledgement of member's liability for fees, agreement to abide by the club's constitution, etc.	Chairperson
Issue 2	Should the details of the club's fixtures be stored in the database instead of an HTML file?	Developers
Issue 3	Scenario: a person joins the club, leaves it and goes to another club, and then re-joins. Technically, they should have a second clearance letter when they re-join, but given the system design they will not be able to indicate this. Should cases like this rather be handled manually?	Chairperson

## 2. BACKGROUND

### 2.1. Business Problems and Issues

The following problems have been identified:

- The paper-based registration process is cumbersome for members.
  - ❖ A registration form has to be obtained and completed by each member, and then returned to a committee member.
  - ❖ Returning members also have to fill out the same form each year and for many their details do not change.
- The paper-based registration process creates a significant amount of work for the Committee.
  - ❖ The Committee has to drive members to complete and return the forms. Committee members have to spend time physically collecting the forms. Forms can also get lost.
  - ❖ The details on the forms have to be manually captured by a committee member and submitted to the hockey union (a mandatory procedure). This task is time-consuming and prone to errors.
- There is no central base of up-to-date member information.
  - ❖ Member information is gathered in a spread-sheet at the beginning of the season by the Secretary and distributed to the rest of the Committee. However, updated versions are often not distributed or are not used, leading to ineffective communication – old members and non-existent addresses are mailed, members who joined late are not included in mails, etc.
  - ❖ There are privacy concerns when blind carbon copying is not used and members' addresses are exposed to everyone who receives the mail, as well as anyone to whom the mail is forwarded. In addition, members can reply to everyone on this list, sometimes leading to large numbers of e-mails being sent to everyone.
- The current Website is costly to maintain and often out of date.
  - ❖ Content is sent to a developer to upload and the developer charges for their time. The updates are often not immediate and can even take weeks.
- The visual design of the current Website is unexciting and lacklustre, which may lead to a poor image of the club.
- Committee members send e-mail from their private addresses, which can cause issues when they leave the Committee, as they are often still contacted regarding the portfolio they held.
  - ❖ In addition, there is no branding on the e-mails the committee sends.

### 2.2. Goals

The following are the goals of the project:

- Improve the member registration process.

- Simplify the administration of the membership information.
- Improve the look of the Website and simplify the management of its content.
- Enable the committee to communicate more effectively.
- Grow the club's membership.

### 2.3. Objectives

The following are the objectives of the project:

- Create an enhanced registration process involving a form that is easy for members to access and submit, and that requires returning members to only update their previously-provided information (rather than re-enter it).
- Create an enhanced registration process that allows the Committee to capture membership information and produce a union registration list with less effort than the current process.
- Provide a facility to centrally maintain and access members' information.
- Reduce the cost of updating the Website's content.
- Reduce the time taken to update the Website.
- Improve the look of the Website.
- Provide the committee with club-specific e-mail addresses with club branding.
- Increase the club's membership by four members each year for the next five years.

### 2.4. Project Dependencies

There are no project dependencies.

## 3. SCOPE AND CONTEXT

### 3.1. Stakeholders

The stakeholders of the project and their interests in it are summarised in Table 3 below.

Stakeholder	Interest	Reference
<b>INTERNAL STAKEHOLDERS</b>		
Committee	<ul style="list-style-type: none"> <li>Report on project progress</li> <li>Being able to mail all members</li> </ul>	FRQ 4.2.
Chairperson	<ul style="list-style-type: none"> <li>Management of sponsors</li> <li>Season set-up</li> <li>Portfolio management</li> </ul>	FRQ 2.7., 5.1, 5.3., 5.4. IRQ 3.1.
Club Captain	<ul style="list-style-type: none"> <li>Communication with the club, including access to members' contact details</li> </ul>	FRQ 1.1. – 1.5., 2.1., 2.2., 4.1. IRQ 1.1., 1.3.
Treasurer	<ul style="list-style-type: none"> <li>Communication with the club, including access to members' contact details</li> <li>Members' subscription fee information</li> </ul>	FRQ 5.2. IRQ 1.1., 2.1.
Secretary	<ul style="list-style-type: none"> <li>Member registration list for the hockey union</li> <li>Access to members' contact details</li> </ul>	FRQ 1.1. – 1.5., 4.1. IRQ 1.1., 1.2.
Social Convenor	<ul style="list-style-type: none"> <li>Communication with the club, including access to members' contact details</li> </ul>	FRQ 2.4., 2.5. IRQ 3.2.
Umpires Delegate	<ul style="list-style-type: none"> <li>Ascertaining which members are prepared to umpire</li> </ul>	IRQ 1.3.
Team captain	<ul style="list-style-type: none"> <li>Reporting match results to the club</li> </ul>	FRQ 2.6. Removed from project scope
Club member	<ul style="list-style-type: none"> <li>Renewing membership for a new season</li> <li>Information about fixtures, events and fees</li> </ul>	FRQ 3.1. – 3.4. FRQ 3.5. Removed from project scope
<b>EXTERNAL STAKEHOLDERS</b>		
Prospective new club members	<ul style="list-style-type: none"> <li>Joining the club (registration)</li> <li>Information about the club – events, photos, fixtures, etc.</li> </ul>	FRQ 1.2., 3.1. – 3.4. FRQ 3.5. Removed from project scope
Supporters and public	<ul style="list-style-type: none"> <li>Information about the club – events, photos, fixtures, etc.</li> </ul>	FRQ 3.1. – 3.4. FRQ 3.5. Removed from project scope
Hockey union	<ul style="list-style-type: none"> <li>Club membership information</li> </ul>	IRQ 1.2.
Sponsors	<ul style="list-style-type: none"> <li>Exposure on the Website</li> </ul>	FRQ 2.7.

**Table 3: Stakeholder requirements matrix**

### 3.2. Solution Scope

The context diagram shown below (Figure 1) depicts which stakeholders will directly interact with the solution and how they will do so. It has been revised since the Business Case was presented. Functionality that is now deemed to be out of scope is shown in grey (see Section 3.3 below for details).

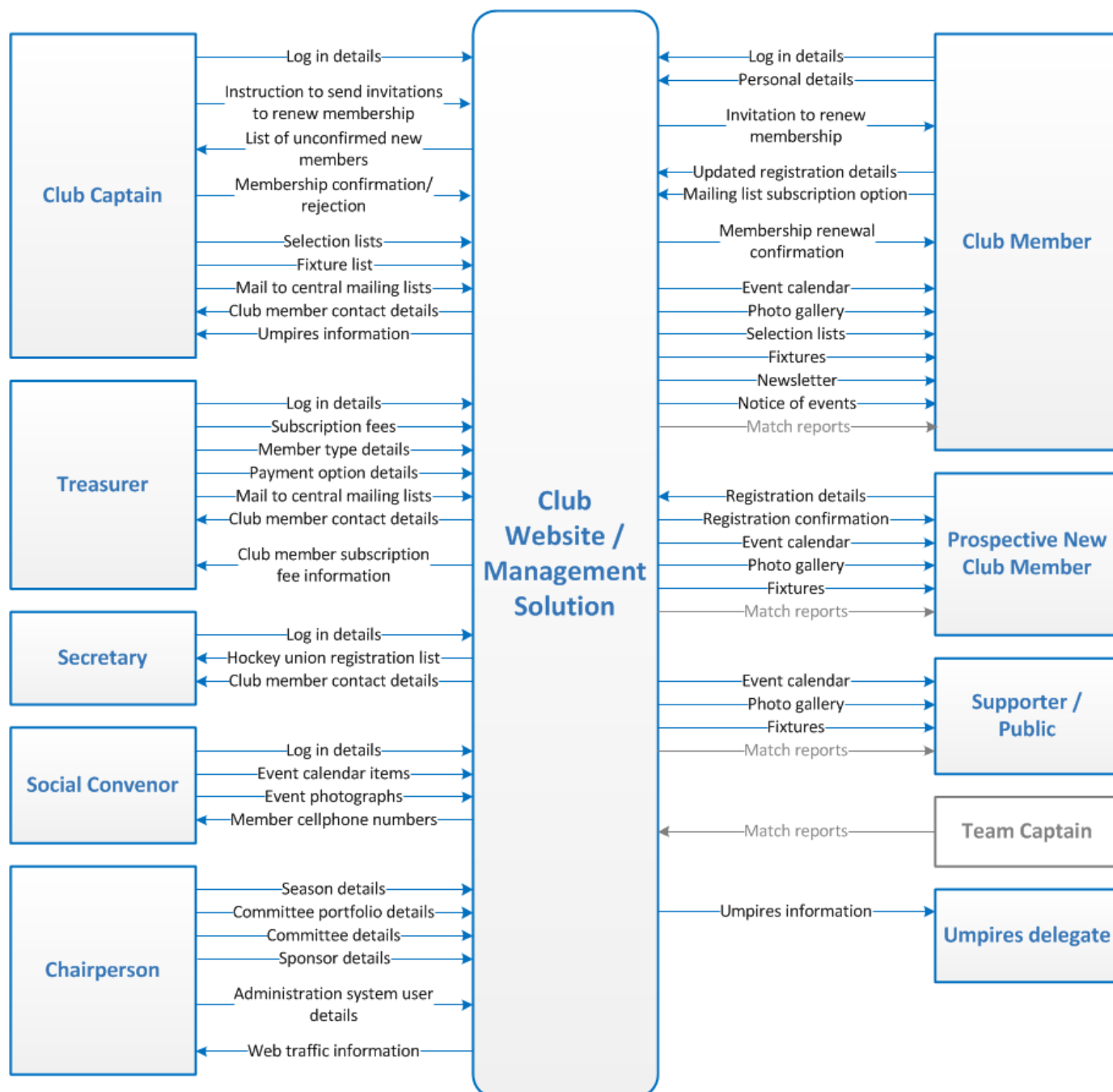


Figure 1: Context diagram

### 3.3. Exclusions

The following exclusions have been made:

Exclusion Number	Description
Exclusion 1	The ability for team captains to post match reports has been removed from the project scope. It is more complex than originally perceived and will therefore take additional development time, which will increase the project cost. It has been listed under Future Work (Section 10).

### 3.4. Assumptions

The following assumptions have been made:

Assumption Number	Description
Assumption 1	All existing club members and potential members have access to the Internet, so they can access a Website.
Assumption 2	All members have an e-mail address through which they can be contacted as required.



## 4. HIGH-LEVEL REQUIREMENTS SPECIFICATION

In this section the requirements of the project are defined at a high level. Requirements that have been added or materially changed since the project's Business Case have been marked with an asterisk (\*).

### 4.1. Functional Requirements

The following functional requirements have been identified:

No.	Requirement
<b>FRQ 1.</b>	<b>Register members</b>
FRQ 1.1. *	<p><i>Invite members to renew membership</i></p> <p>The solution must be able to send personalised e-mails to the previous season's members to invite them to renew their membership for the new season. The Club Captains must activate the procedure and only those who have not registered must be invited. It must be able to be run multiple times during the season.</p>
FRQ 1.2.	<p><i>Handle new member registration</i></p> <p>A new member must be able to register to join the club.</p>
FRQ 1.3.	<p><i>Handle membership renewal</i></p> <p>A member who has already registered and wishes to play during the new season must be able to renew their membership – i.e., update or confirm their details and sign up for the new season.</p>
FRQ 1.4. *	<p><i>Review membership submission</i></p> <p>The Club Captains must be able to review and confirm both new and renewal membership submissions.</p>
FRQ 1.5. *	<p><i>Update member's registration details</i></p> <p>The Club Captains and Secretary must be able to update a member's registration details. This includes the ability to cancel a member's registration. (An example of when this might be done is if a player is injured early in the season, unable to play for the rest of the season, and not liable for any fees.)</p>
<b>FRQ 2.</b>	<b>Manage content</b>
FRQ 2.1. *	<p><i>Upload selection lists</i></p> <p>The Club Captains must be able to post the selection lists.</p>
FRQ 2.2.	<p><i>Upload fixture list</i></p> <p>The Club Captains must be able to post the fixture list, which is an Excel file obtained from the hockey union.</p>
FRQ 2.3. *	(Changed to FRQ 5.1.)

No.	Requirement
FRQ 2.4.	<i>Post event calendar items</i> The social convenor must be able to post items to an event calendar.
FRQ 2.5.	<i>Post photographs</i> The social convenor must be able to post photographs to a photo gallery.
FRQ 2.6. *	<i>Post match reports</i> The team captains must be able to post match reports.  This requirement has been removed from the project scope.
FRQ 2.7. *	<i>Manage sponsor list</i> The Chairperson must be able to manage the list of sponsors (and their logos) that is shown on the site.
<b>FRQ 3.</b>	<b>View content</b>
FRQ 3.1. *	<i>View selection lists</i> Everyone must be able to view the selection lists.
FRQ 3.2.	<i>View fixtures</i> Everyone must be able to view the club's fixtures.
FRQ 3.3.	<i>View event calendar</i> Everyone must be able to view the event calendar.
FRQ 3.4.	<i>View photographs</i> Everyone must be able to view the photographs.
FRQ 3.5. *	<i>View match reports</i> Everyone must be able to view the match reports.  This requirement has been removed from the project scope.
<b>FRQ 4.</b>	<b>Manage mailing lists</b>
FRQ 4.1.	<i>Subscribe member to mailing list</i> Members must be automatically subscribed to the appropriate mailing list when they register or renew their membership.
FRQ 4.2.	<i>Send e-mails to mailing list</i> The Committee must be able to send e-mails to the mailing list.

No.	Requirement
<b>FRQ 5. *</b>	<b>Manage master data</b>
FRQ 5.1. *	<i>Add new season</i> The Chairperson must be able to add a new season, which will enable the system to be configured for the new season.
FRQ 5.2. *	<i>Set member types</i> The Treasurer must be able to configure the member types. These must be published on the Website.
FRQ 5.3. *	<i>Set subscription fees</i> The Treasurer must be able to set the season's subscription fees. These must be published on the Website.
FRQ 5.4. *	<i>Set payment options</i> The Treasurer must be able to specify the payment options. These must be published on the Website.
FRQ 5.5. *	<i>Define portfolios</i> The Chairperson must be able to define the portfolios for the Committee and other roles.
FRQ 5.6. *	<i>Set holders of portfolios</i> The Chairperson must be able to set the holders of these portfolios (for the season). They must be members of the club and their contact details must be published on the site.
FRQ 5.7. *	<i>Manage administration system users</i> The Chairperson must be able to manage the users of the administration system.

**Table 4: Functional requirements**

## 4.2. Informational Requirements

The following informational requirements have been identified:

No.	Requirement	Stakeholders
<b>IRQ 1.</b>	<b>Membership lists</b>	
IRQ 1.1.	<i>Club member contact details extract</i> The solution must be able to generate an Excel file of all members and their contact details.	All Committee members, but particularly important for the: <ul style="list-style-type: none"> <li>• Club Captains</li> <li>• Treasurer</li> <li>• Secretary</li> </ul>

No.	Requirement	Stakeholders
IRQ 1.2.	<i>Hockey union registration list</i> The solution must be able to generate an Excel file of all members and their contact details in the format required by the hockey union.	Secretary
IRQ 1.3. *	<i>Umpires list</i> The solution must be able to generate an Excel file of all members who are prepared to umpire (as indicated when they registered).	<ul style="list-style-type: none"> <li>• Umpires Delegate</li> <li>• Club Captains</li> </ul>
<b>IRQ 2.</b>	<b>Other lists</b>	
IRQ 2.1.	<i>Club member subscription fee list</i> The solution must be able to generate an Excel file of all members and their subscription fee details (i.e., what type of member they are and what their subscription fee is).	Treasurer
<b>IRQ 3.</b>	<b>Other informational requirements</b>	
IRQ 3.1.	<i>Web traffic report</i> The committee must be able to see a report detailing the Website's traffic.	Chairperson
IRQ 3.2. *	<i>Cellphone number extract</i> The solution must be able to generate an Excel file of all members' cellphone numbers that can be imported into the SMS system. The file must be formatted as required by the SMS system.	Social Convenor

Table 5: Informational requirements

### 4.3. Non-functional Requirements

The following non-functional requirements have been identified:

No.	Requirement
NRQ 1.	<i>Security</i> There must be adequate security to prevent unauthorised access to the management sections of the site and administration system. The prevention of unauthorised access to the members' information is particularly important.
NRQ 2.	<i>Technologies to be used</i> The solution must be created using technologies that are easy to access and not proprietary to the development vendor. The original source code is a deliverable.

No.	Requirement
NRQ 3.	<i>Backup</i> There must be an automatic procedure to back up the database once a day.
NRQ 4.	<i>Disaster recovery</i> A disaster recovery plan must be delivered with the solution.
NRQ 5.	<i>Content management</i> The solution must allow the Committee to change the content of the Website without requiring technical knowledge and skills (e.g., knowledge of HTML).
NRQ 6.	<i>Cross-browser support</i> The solution must function in all major Web browsers.
NRQ 7.	<i>Speed</i> The solution must function sufficiently quickly so as to not hamper use (the time it takes for a Web page to load is particularly important).
NRQ 8.	<i>Search engine optimisation</i> The solution must be optimised so as to ensure it supports search engines and helps the site achieve a good ranking.
NRQ 9.	<i>User interface</i> The user interface must be designed so that it guides the user and easy for a broad variety of people to use (young and old, technology proficient and not, etc.). This is especially important for the registration process.
NRQ 10. *	<i>Disk space for new content</i> The solution must provide a reasonable amount of disk space for the addition of new (future) content.
NRQ 11.	<i>Report/list Excel format</i> All Excel reports/lists must be in Excel 2007 format.

Table 6: Non-functional requirements

## 5. SOLUTION ARCHITECTURE OUTLINE

### 5.1. Technology Platform and Systems Interaction

The technology platform is shown in Figure 2 and systems interaction in Figure 3. Both give an overview of the systems that are part of the solution; they are not meant to show a full mapping of requirements to systems.

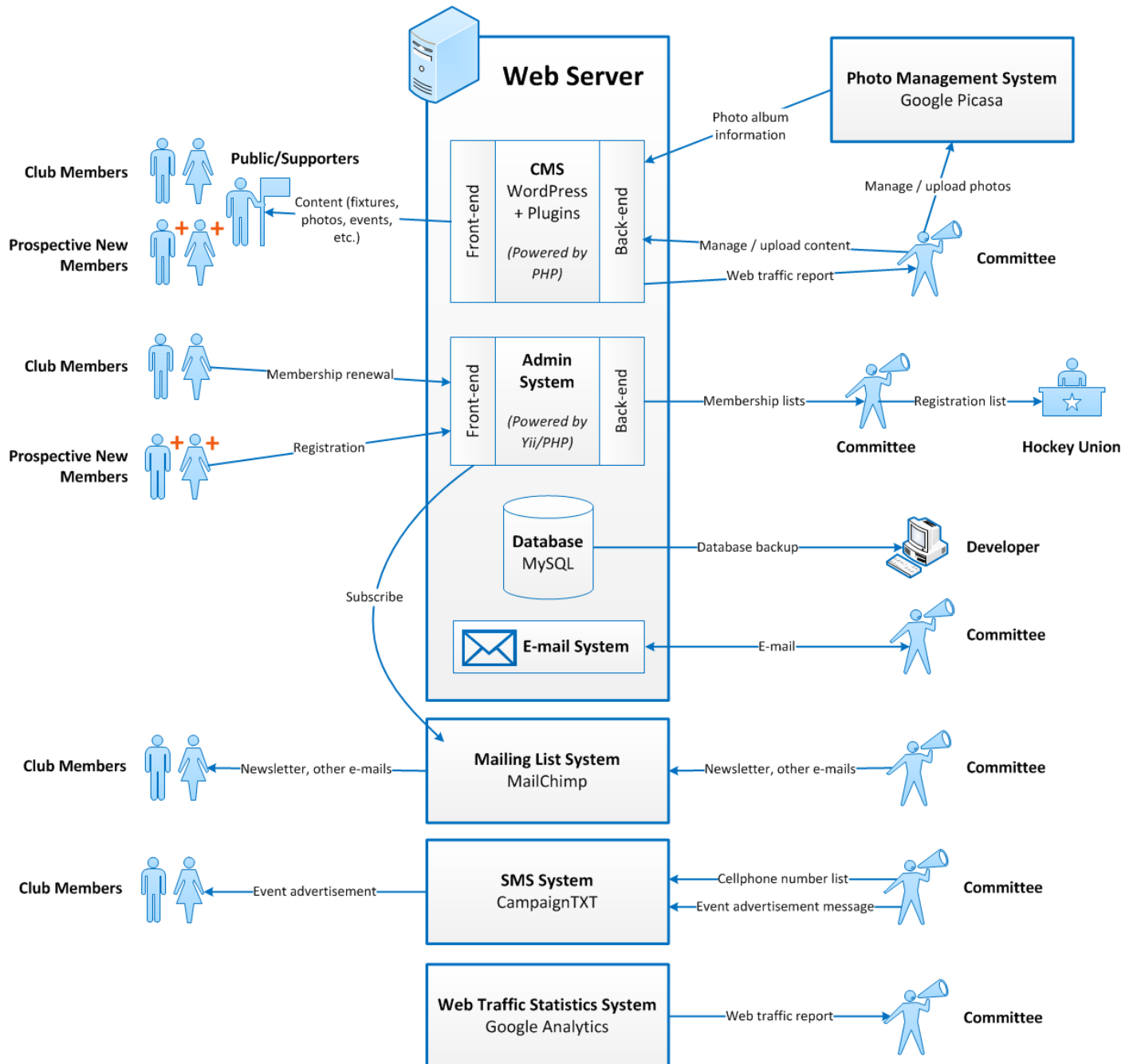


Figure 2: Technology platform diagram

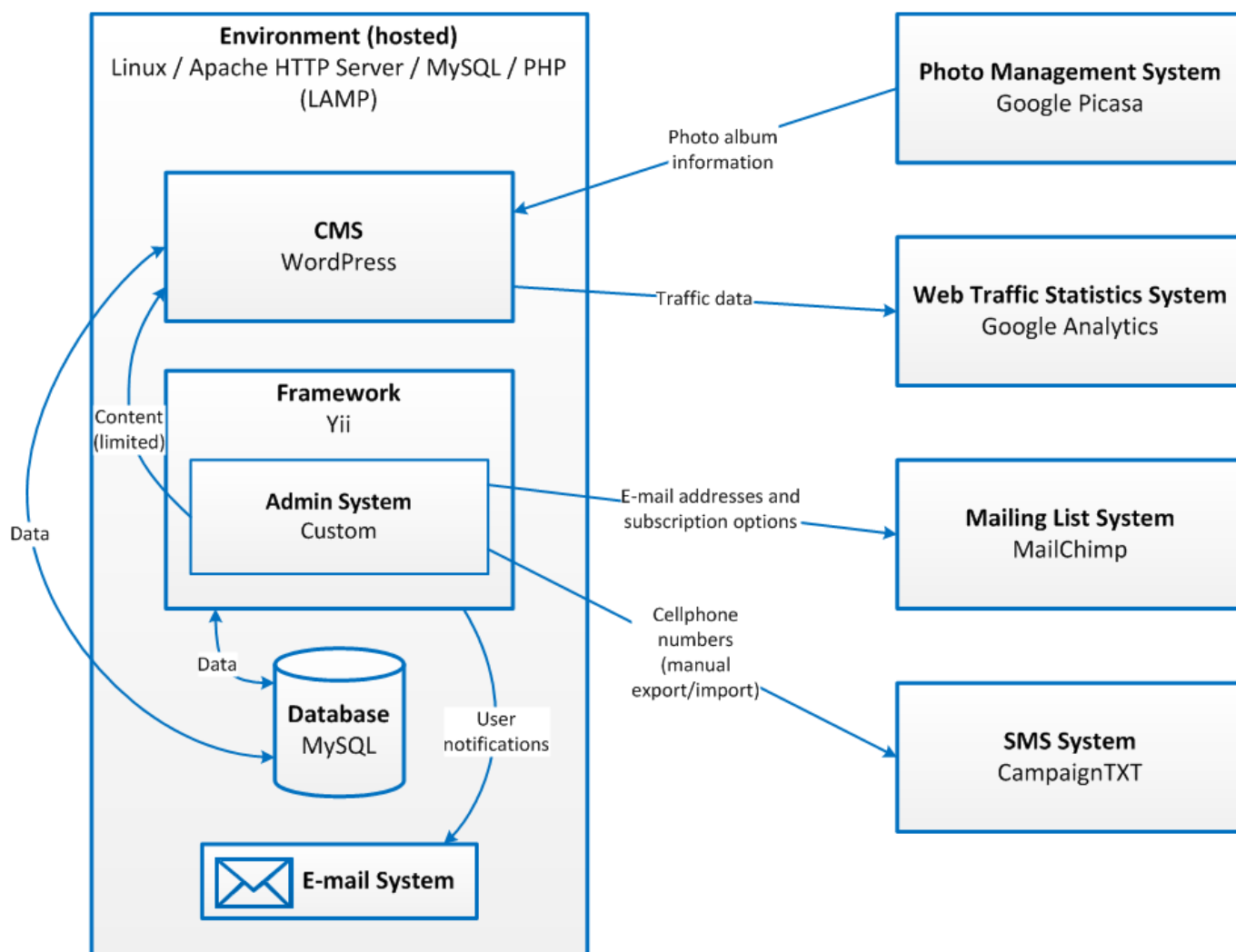


Figure 3: Systems interaction diagram

The systems are explained in further detail in the table below.

System	System Name	Description
<b>INTERNAL SYSTEMS</b>		
Environment (hosted)	LAMP	Consists of: <ul style="list-style-type: none"> <li>Linux: Operating system.</li> <li>Apache HTTP Server: Web server.</li> <li>MySQL: Database system; see below.</li> <li>PHP: Scripting language; used by the CMS and administration system.</li> </ul>
PHP framework	Yii	High-performance component-based PHP framework for Web development.

System	System Name	Description
CMS	WordPress	<ul style="list-style-type: none"> <li>Made up of a front-end (the Website) and a back-end.</li> <li>Front-end: used by club members, prospective new members and supporters and public to view content (fixtures, photographs, event calendar, etc.).</li> <li>Back-end: used by the Committee to upload content.</li> <li>Functionality will be extended through use plugins (many of which are provided free of charge) and some custom development.</li> </ul>
Administration system	(Custom)	<ul style="list-style-type: none"> <li>Consists of a front-end and a back-end.</li> <li>Accessed using same domain as Website but is separate to the CMS.</li> <li>Front-end: used by club members and prospective new members renew membership and register respectively.</li> <li>Back-end: used by the Committee to generate reports/lists, including registration list for the hockey union.</li> <li>Some content, such as fees, will be managed via the administration system and fed to the CMS for public display.</li> </ul>
Database system	MySQL	<ul style="list-style-type: none"> <li>Used by the CMS and administration system.</li> <li>Backup of database will be sent to developer (and/or a Committee member) on a daily basis.</li> </ul>
E-mail system		Used to provide e-mail addresses for the committee
<b>EXTERNAL SYSTEMS</b>		
Photo management	Google Picasa	<ul style="list-style-type: none"> <li>Used to store and manage photographs.</li> <li>Free account offers 1 GB of storage of large photos (2048 x 2048 pixels); smaller photos do not count towards the limit.</li> <li>Album information will be shared with WordPress so that albums can be viewed through the site.</li> </ul>
Web traffic statistics	Google Analytics	<ul style="list-style-type: none"> <li>Used to track Website traffic.</li> <li>Free to use (with limits; however, these will not be reached due to the small size of the solution).</li> <li>Must be integrated with WordPress.</li> </ul>



System	System Name	Description
Mailing lists	MailChimp	<ul style="list-style-type: none"><li>▪ Used to manage mailing lists and send e-mails to subscribers.</li><li>▪ Free to use (with limits; however, these will not be reached due to the small size of the solution).</li><li>▪ As members register or renew their membership, they will be subscribed to the mailing lists relevant to them.</li><li>▪ Committee will use the system to send out newsletters and other mass mails.</li></ul>
SMS	CampaignTXT	<ul style="list-style-type: none"><li>▪ Used to send out SMSes.</li><li>▪ Access provided free of charge by a club member.</li><li>▪ Cellphone numbers must be manually imported because there is no means of integrating with the system. An export will be provided through the administration system.</li></ul>

**Table 7: System descriptions**

## 5.2. Website Design

### 5.2.1. Site Layout

The Website will have the layout template shown in Figure 4. Figure 5 shows the design of the front page of the site. Except for the contents section, all the other sections remain constant and are displayed on each page of the site. The menu section is the primary means of navigation.



Figure 4: Basic Website layout

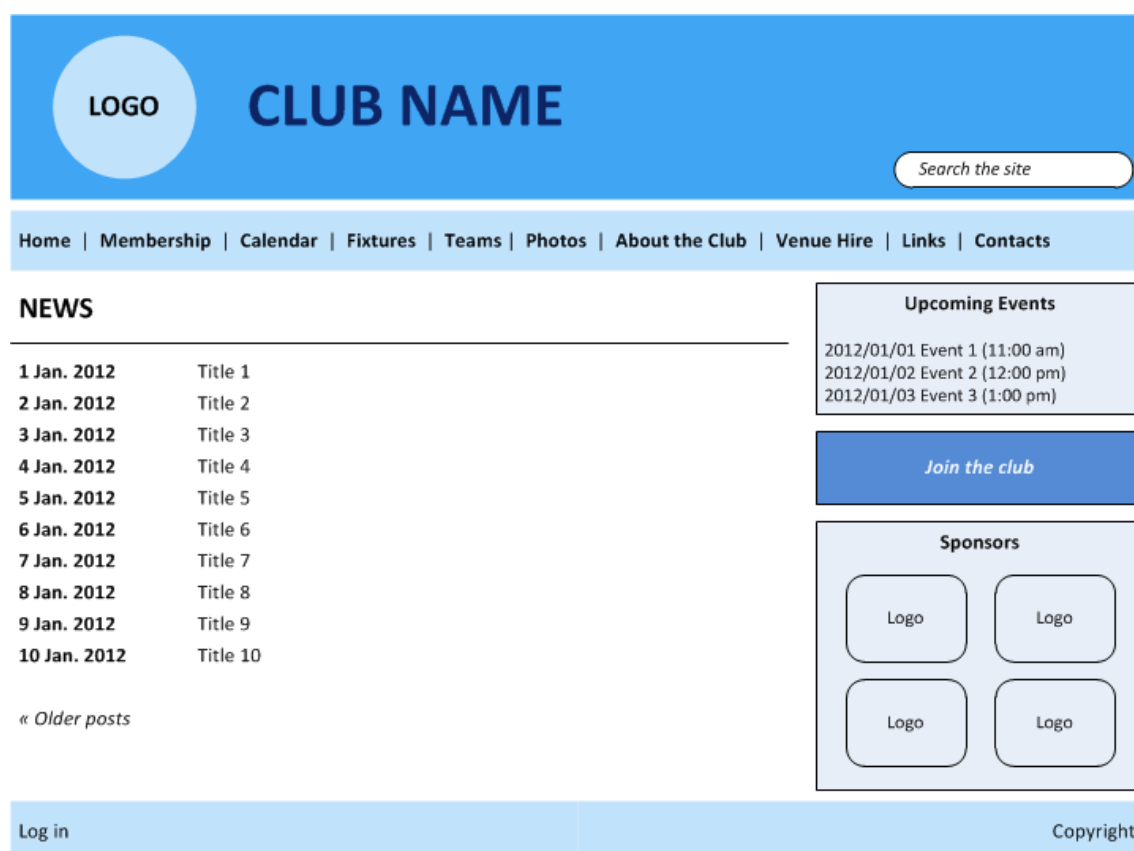


Figure 5: Front page design

### 5.2.2. Site Map

The structure for the contents of the website is as follows:

Page	Description
<b>Home</b>	The front page, which shows news about the club.
<b>Membership</b>	How to join, membership fees and criteria, and banking details.
<b>Calendar</b>	The club's calendar, which includes social events.
<b>Fixtures</b>	The club's fixture list.
<b>Photos</b>	Photographs of the club's events, etc.
<b>About the Club</b>	A "blurb" to describing the club and a link to its constitution.
<b>Venue Hire</b>	Details on hiring the club house/fields.
<b>Links</b>	Links to relevant/interesting websites, such as the hockey union.
<b>Contacts</b>	The club's address, a map to the club house/fields, and the portfolio holders (committee and additional) and their contact details.

**Table 8: Site map**

## 5.3. Business Processes

### 5.3.1. High-level Overview

The process diagram shown as Figure 6 illustrates the high-level process (involving the core tasks) around registration and the use of the members' details. The diagram is of the to-be process, but this is not entirely different to the as-is process. The differences are as follows (see the "As-is: note X" annotations on the diagram):

1. The tasks handled in the to-be process by the System are currently performed by the Secretary.
2. The member subscription fee information is currently manually derived by the Treasurer, based on the registration list that is compiled by the Secretary (see the as-is Registration process below).
3. The lists used by the Social Convenor, Club Captain and Secretary are currently all the same list, namely the registration list.

### 5.3.2. As-is Processes

#### 5.3.2.1. Registration

As noted in under Business Problems and Issues (Section 2.1), the current registration process is paper-based and manual. It is shown in Figure 7.

### 5.3.3. To-be Processes

The to-be processes are discussed in the Detailed Requirements Specification section (Section 6).

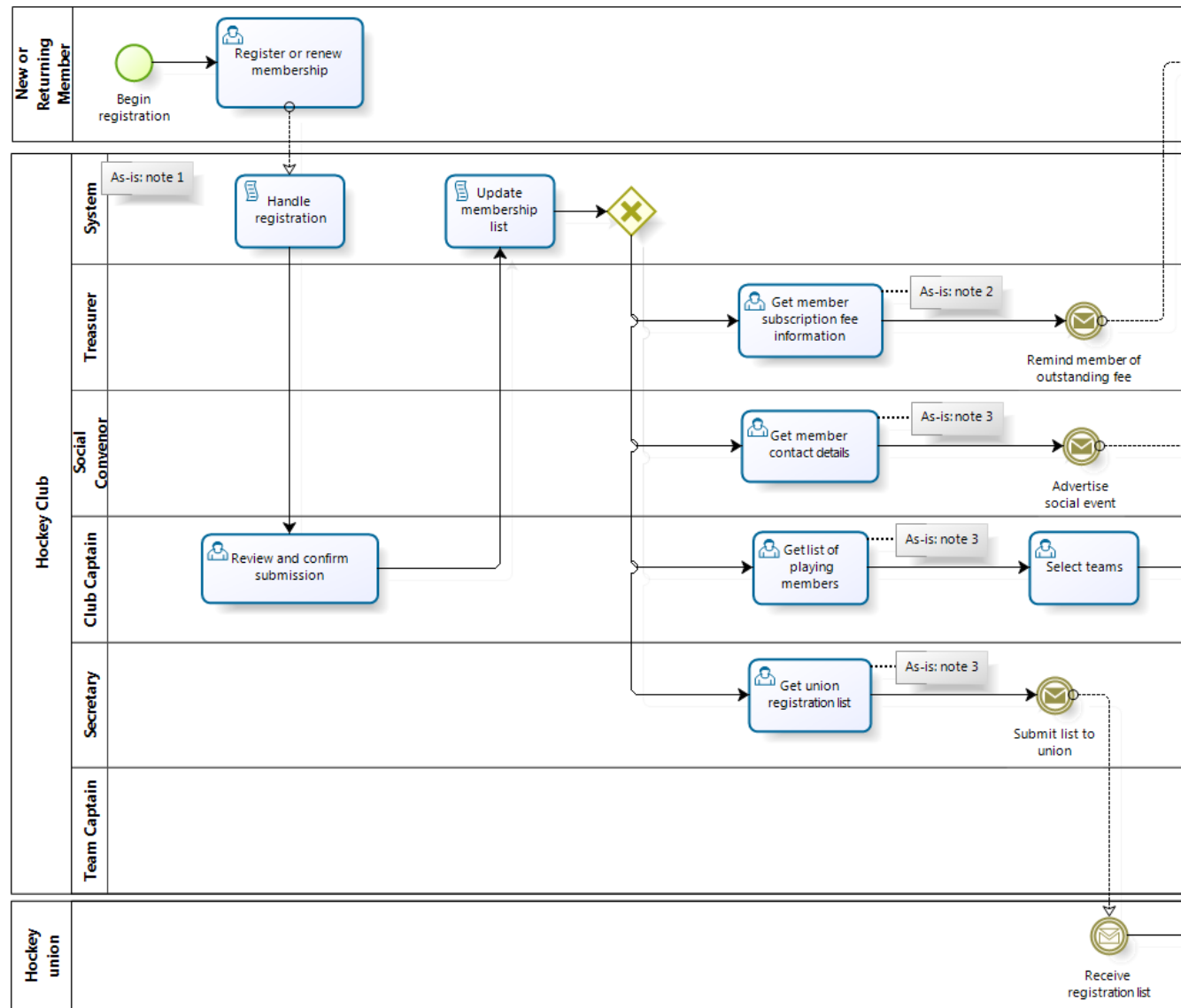
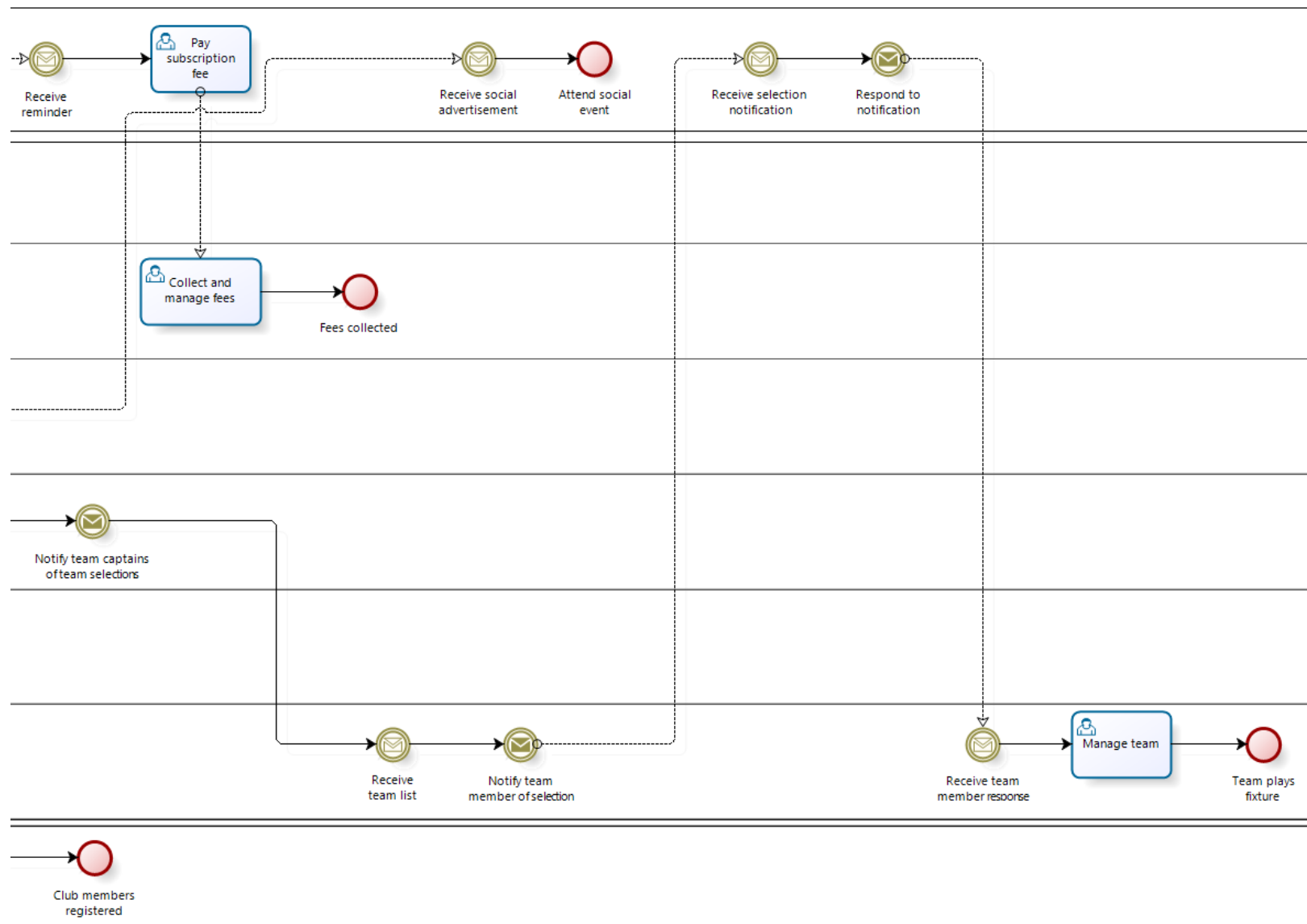


Figure 6: High-level overview process diagram



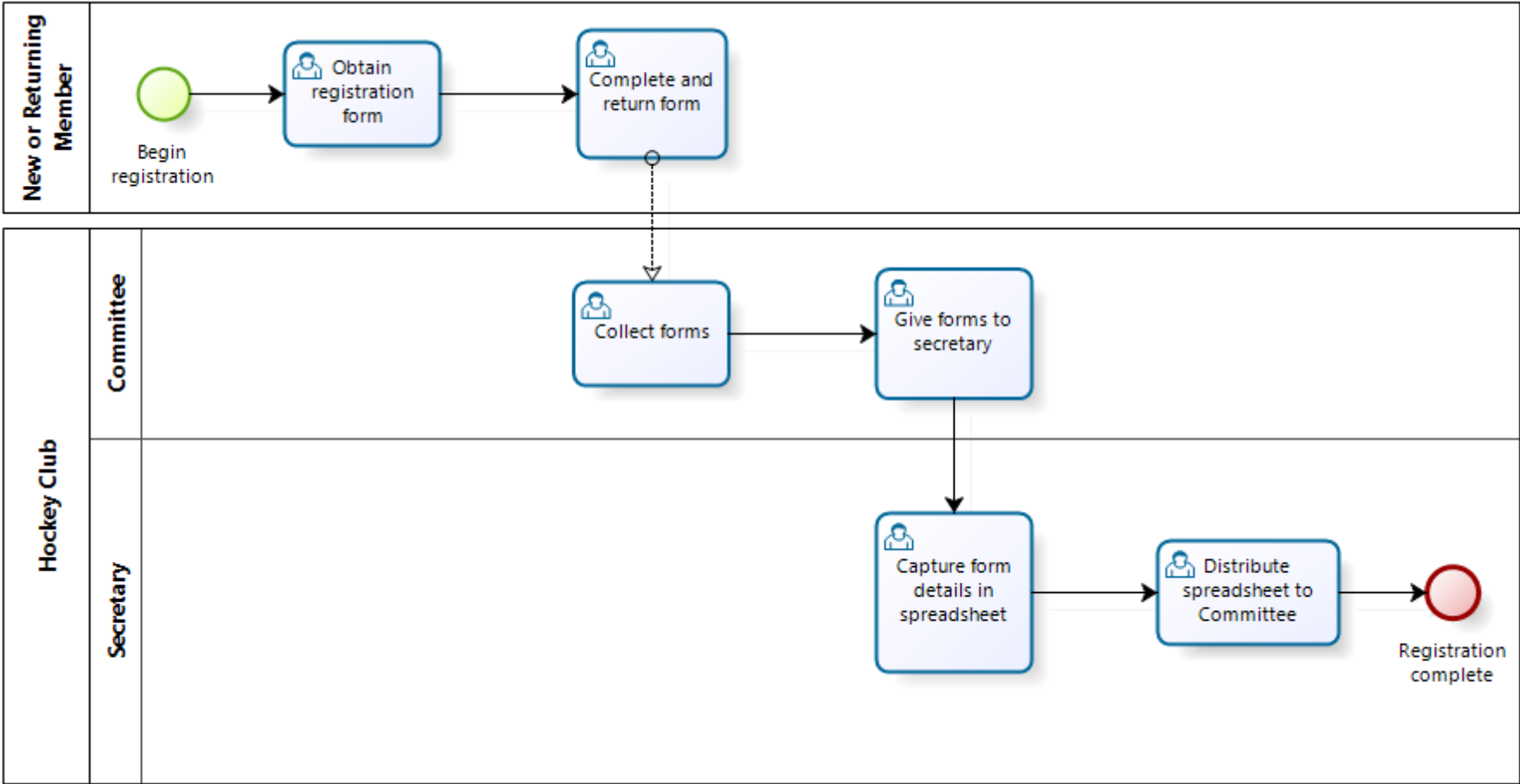





Figure 7: As-is Registration process diagram

## 5.4. Data Model

The data model is shown in the entity-relationship diagram (Figure 8) below. Some notes on the various tables and fields in the model follow in Table 9. The Create, Read, Update and Delete (CRUD) matrix is shown in Table 10.

Entity-relationship Diagram Legend	
	Primary key
	Foreign key
	Required value (cannot be NULL)

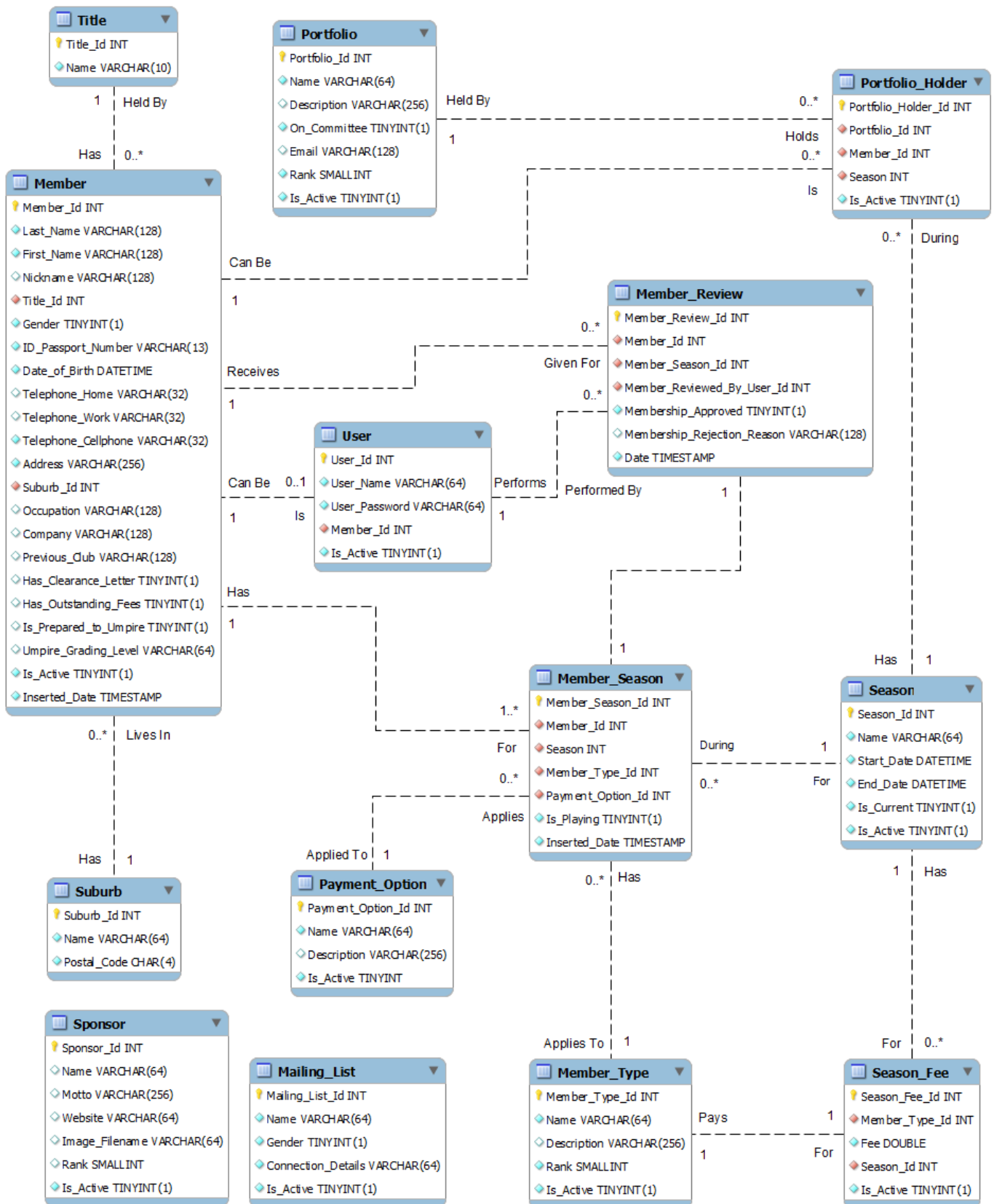


Figure 8: Entity-relationship diagram



Data Model Notes		
Table	Field	Note
		Primary keys must be automatically generated by the database management system.
		The <code>TINYINT (1)</code> field type is equivalent to a Boolean (MySQL does not have a Boolean type).
(Various)	<code>Is_Active</code>	<p>This flag is used to soft delete rows to prevent them from being used. Soft deletion is used in order to ensure referential integrity.</p> <p>Default value upon insertion: 1 (active).</p>
(Various)	<code>Rank</code>	<p>This is used to dictate the order in which the entries in a table are displayed when listed.</p> <p>Default value upon insertion: 9999 (last).</p>
<code>Mailing_List</code>	<code>Connection_Details</code>	All details (username, password, etc.) required to connect to the mailing list provider and add addresses to a particular list, in a delimited string.
<code>Member</code>	(Telephone Numbers)	These must be stored as strings because they are discrete pieces of data that can contain numerals, as opposed to being pure numbers. There should be no formatting (e.g., dashes) in them.
<code>Member_Type</code>		The master data for this table is listed in Section 11.1.1.
<code>Member_Season</code>	<code>Is_Playing</code>	<p>Set to 1 if someone is a member of the club during a particular season, 0 if not. If there is no <code>Member_Season</code> record for someone for a particular season, this is equivalent to <code>Is_Playing = 0</code> because a record is only created upon input from the person, such as a reply to an invitation to renew membership (see FRQ 1.1., section 6.1.1).</p> <p>The <code>Is_Active</code> flag on the <code>Member</code> table must <i>not</i> be used for the purpose for indicating that someone is not a member during a season.</p>
<code>Portfolio</code>		The master data for this table is listed in Section 11.1.2.

Data Model Notes		
Portfolio	Email	This is the e-mail address for the portfolio, not the address of the member who is the portfolio holder.
Suburb		Cape Town suburbs and postal codes, as listed in the Excel file mentioned in Section 1.3.
Suburb	Postal_Code	Like telephone numbers, postal codes are discrete pieces of data rather than numbers and must be stored as character strings.
Title		The master data for this table is listed in Section 11.1.3.

**Table 9: Data model notes**

Requirement	NOTES	Mailing List	Member	Member Confirmation	Member Season	Member Type	Payment Option	Portfolio	Portfolio Holder	Season	Season Fee	Sponsor	Suburb	Title	User
Invite Members to Renew Membership (FRQ 1.1.)			R		R					R					
Handle New Member Registration (FRQ 1.2.)			CD		CD	R	R			R			R	R	
Handle Membership Renewal (FRQ 1.3.)			CD		CD	R	R			R			R	R	
Review Membership Submission (FRQ 1.4.)			CD	CD	CD	R	R			R			R	R	
Update Member's Registration Details (FRQ 1.5.)			UD	R	CD					R			R	R	
Upload Selection Lists (FRQ 2.1.)	No effect														
Upload Fixture List (FRQ 2.2.)	To be determined														
Post Event Calendar Items (FRQ 2.4.)	WordPress														
Post Photographs (FRQ 2.5.)	No effect														
Manage Sponsor List (FRQ 2.7.)												CD			
View Selection Lists (FRQ 3.1.)	WordPress														
View Fixtures (FRQ 3.2.)	To be determined														
View Event Calendar (FRQ 3.3.)	WordPress														
View Photographs (FRQ 3.4.)	No effect														
Subscribe Member to Mailing List (FRQ 4.1.)		R													
Send E-Mails to Mailing List (FRQ 4.2.)	No effect														
Add New Season (FRQ 5.1.)										CD					

Requirement	NOTES	Mailing List	Member	Member Confirmation	Member Season	Member Type	Payment Option	Portfolio	Portfolio Holder	Season	Season Fee	Sponsor	Suburb	Title	User
Set Member Types (FRQ 5.2.)						CD									
Set Subscription Fees (FRQ 5.3.)						R				R	CD				
Set Payment Options (FRQ 5.4.)							CD								
Define Portfolios (FRQ 5.5.)								CD							
Set Holders of Portfolios (FRQ 5.6.)			R					R	CD	R					
Manage Administration System Users (FRQ 5.7.)			R												CD

Table 10: CRUD matrix

## Notes:

- *No effect*: the requirement does not use the database.
- *To be determined*: the requirement's database has not been determined because of an outstanding issue.
- *WordPress*: the functionality for the requirement is provided by WordPress and it does not use the database.

## 6. DETAILED REQUIREMENTS SPECIFICATION

### 6.1. Functional Requirements

#### 6.1.1. Invite Members to Renew Membership (FRQ 1.1.)

##### 6.1.1.1. To-be Process

The process is detailed in Figure 9. A legend explaining the diagram notation can be found in Appendix 11.2.

##### 6.1.1.2. Use Case

Use Case	Invite Members to Renew Membership
Use Case No.	1.0
Goal in Context	Send members who played during the previous season an e-mail that invites them to renew their membership for the new season.
Scope	Hockey Club Website and Management Solution
Level	Primary
Preconditions	Details of all members from previous season are in the database.
Success End Condition	<ul style="list-style-type: none"> <li>Each invitee receives a personalised e-mail inviting them to renew their membership for the new season.</li> <li>The user who triggered the process is informed of the outcome.</li> </ul>
Failed End Condition	Display an error message if the member is not renewing but their information cannot be found in the database, and so cannot be updated. (They may, for example, be an unregistered person may be responding to an e-mail forwarded by a club member.)
Primary Actor	Club Captain
Trigger	"Send invitations" button pressed.
Main Success Scenario	<ol style="list-style-type: none"> <li>The Club Captain clicks the "Send invitations" button, which triggers the process.</li> <li>Each person who was a member of the club during the previous season is sent a personalised e-mail (detailed in section 6.1.1.3), but only if they have not already renewed or declined to renew their membership. The system must display the result of this operation to the Club Captain, as well as a history of all the invitations that have been sent out.</li> <li>The member receives the e-mail and clicks on one of two links (which take them to the Website), choosing either to renew or not. There may be a significant delay in their response (e.g., weeks).</li> </ol>

Use Case	Invite Members to Renew Membership
	<ol style="list-style-type: none"> <li>4. If the member has chosen to renew their membership:               <ol style="list-style-type: none"> <li>a. The member enters their ID number.</li> <li>b. The system's retrieves their information.</li> <li>c. If their information has been retrieved, the Handle Membership Renewal process must be invoked.</li> <li>d. If their information has not been retrieved (it is not in the database), the system must ask if they wish to register. (A case where this might happen is if they're a new member who is responding to an e-mail that was forwarded to them.)                   <ol style="list-style-type: none"> <li>i. If they want to register, the Handle New Member Registration Process must be followed.</li> <li>ii. If they do not, the process terminates and the person is shown a "no action" message (explaining that there is nothing that needs to be done and inviting them to browse the site).</li> </ol> </li> </ol> </li> <li>5. If the member has chosen not to renew their membership:               <ol style="list-style-type: none"> <li>a. The member enters their ID number and selects whether or not they would like to remain on the club's mailing list (to receive event invitations, the newsletter, etc.).</li> <li>b. The system's retrieves their information.</li> <li>c. If their information has been retrieved, the membership list must be updated to show that they are not renewing their membership and the mailing list must be updated (i.e., they must be removed if they choose to be).</li> <li>d. If their information has not been retrieved (it is not in the database), display an error and end the process. (Again, it may be the case that they are an unregistered member who is responding to a forwarded e-mail.)</li> </ol> </li> </ol>
Extensions	None
Sub-variations	None
Superordinate Use Cases	None
Subordinate Use Cases	Handle New Member Registration Handle Membership Renewal
Secondary Actors	Returning Member
Open Issues	None

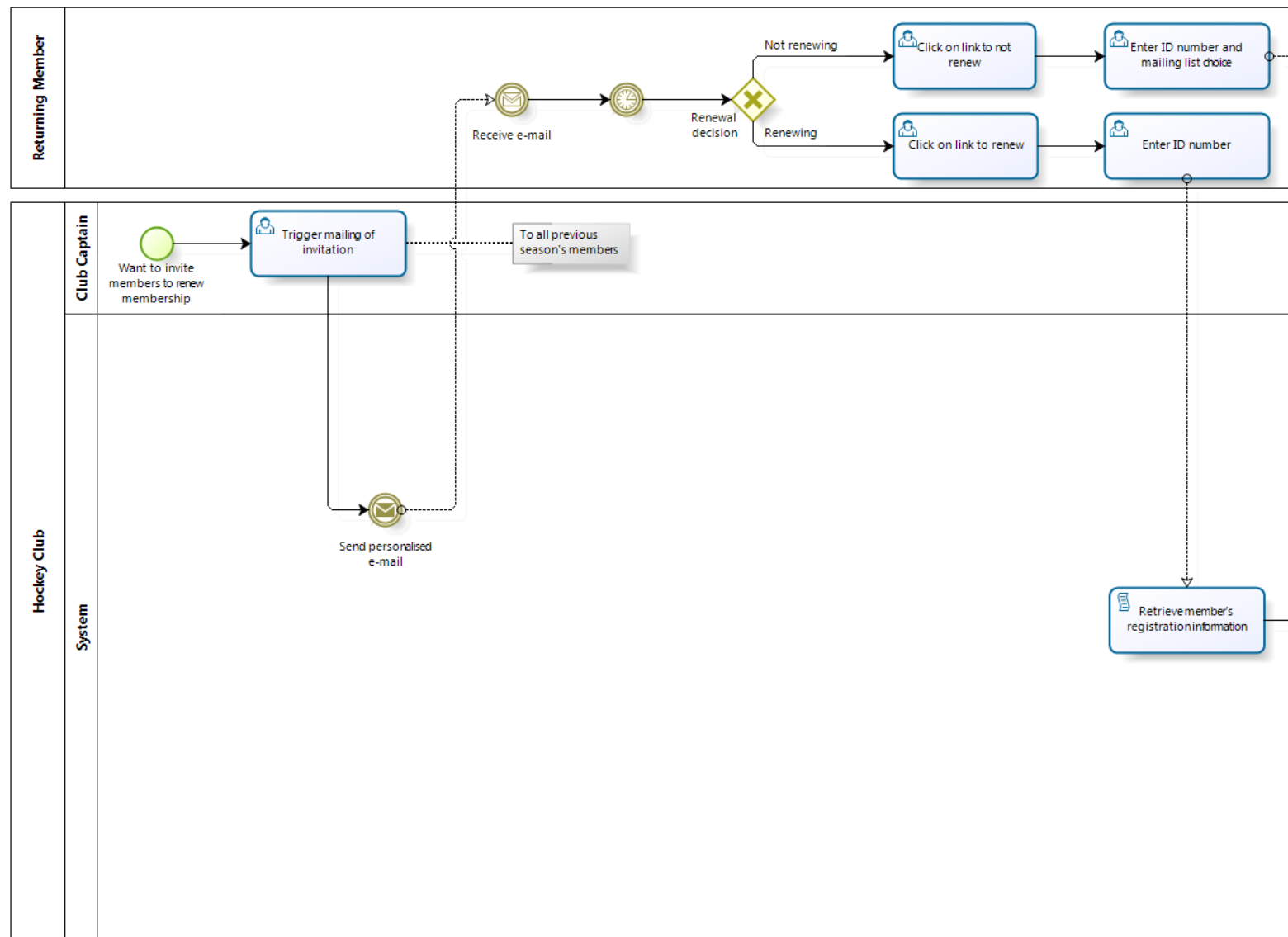
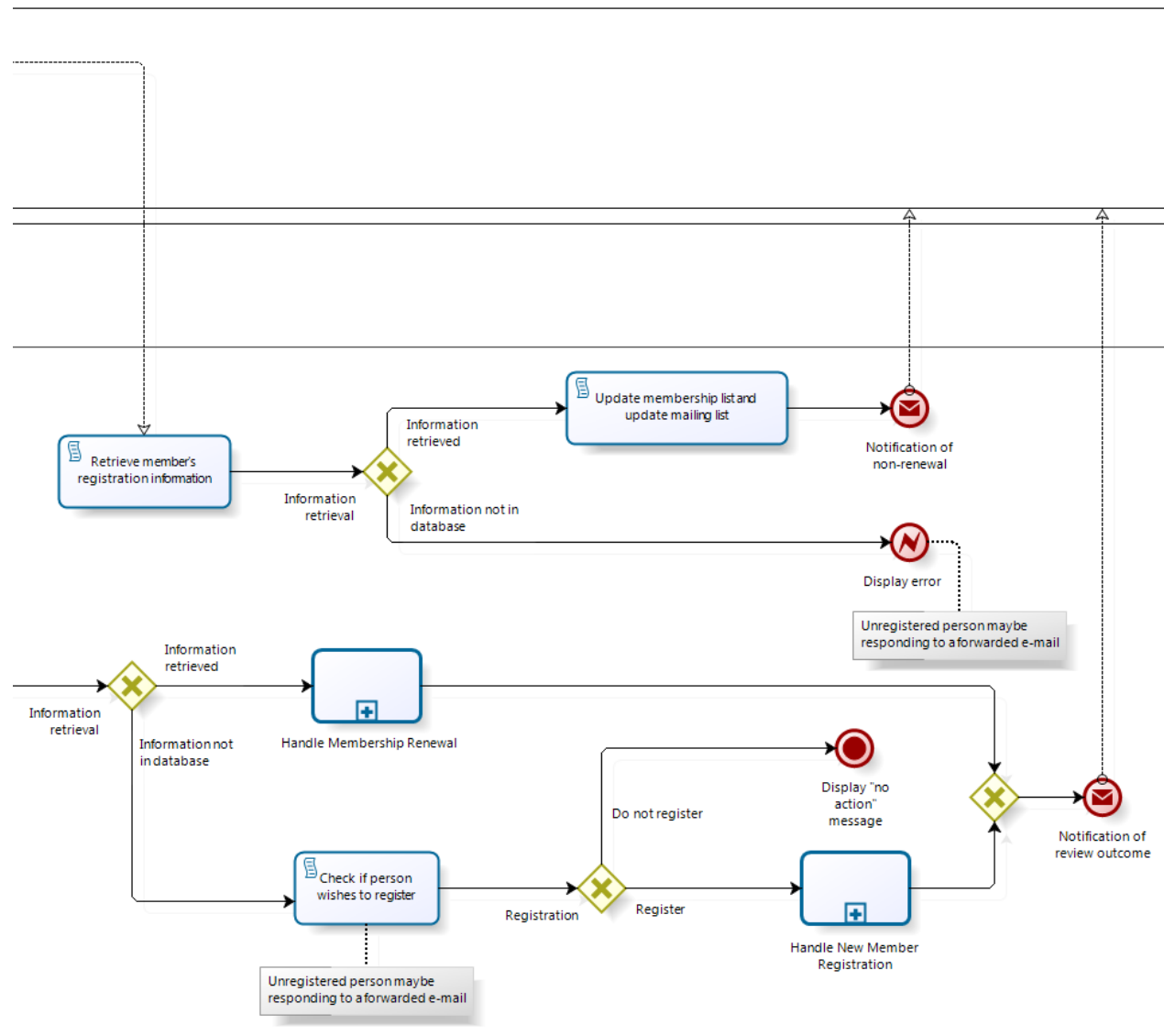


Figure 9: Invite Members to Renew Membership process diagram





### 6.1.1.3. Invitation E-mail Details

The template of the invitation e-mail to be sent to members is shown below. This e-mail must be sent with the Club Captain's portfolio e-mail address as the "from" address, so that if members reply to it the Club Captain will receive the response.

**Subject:** Join us for the <Season . Name> hockey season!

**Body:**

Dear <Member . First\_Name>

I'd like to invite you to join us for the <Season . Name> hockey season, which starts on <Season . Start\_Date> [*format: D Month YYYY – e.g., 9 April 2012*]. Information on trials and membership fees can be found on our Website, <link>.

If you would like to join, please go *here* <link>.

If you will not be joining us this season, please go *here* <link> and we will not send you any more invitations. You can also remove yourself from our mailing list.

If you have any questions, please do not hesitate to contact me.

Kind regards

<Club Captain Name>

Contact number: <Club Captain Cell Number>

E-mail: <Club Captain Portfolio E-mail Address>

### 6.1.2. Handle New Member Registration (FRQ 1.2.)

#### 6.1.2.1. To-be Process

The process is detailed in Figure 10.

#### 6.1.2.2. Use Case

Use Case	Handle New Member Registration
Use Case No.	2.0
Goal in Context	Capture and store a new member's details in the system.
Scope	Hockey Club Website and Management Solution
Level	Primary / subordinate
Preconditions	The details for the new season must be entered into the system.

Use Case	Handle New Member Registration
Success End Condition	The new member's details are submitted to the Club Captain for review.
Failed End Condition	No specific failure condition, but the new member can abort the process before it has completed.
Primary Actor	New Member
Trigger	The New Member visits the Website registration page and enters their ID number.
Main Success Scenario	<ol style="list-style-type: none"> <li>1. The new member enters their ID number.</li> <li>2. The system's retrieves their information.</li> <li>3. If their information has been retrieved, the Handle Membership Renewal process is invoked and from this the member receives notification of the outcome of the membership submission review performed as part of the process.</li> <li>4. If their information has not been retrieved, the person is in fact a new member and they are shown a blank registration form (see Figure 13 below).</li> <li>5. The New Member completes the registration form.</li> <li>6. The New Member submits the form.</li> <li>7. The system then validates the captured information. <ol style="list-style-type: none"> <li>a. If there is an error, the system displays an error message and indicates the problematic fields.</li> <li>b. The New Member makes a correction and submits the form again.</li> </ol> </li> <li>8. If (or when) there are no errors, the New Member's submission is added to the confirmation queue for the Club Captain to review. Simultaneously: <ol style="list-style-type: none"> <li>a. The New Member is notified, via a message on the Website and an e-mail, that their submission is awaiting review.</li> <li>b. The Club Captain is notified of the submission, which they must review. This they do during the Review Membership Submission process, the result of which is a notification to the member to tell them the outcome of the review. A notification must not be sent to the Club Captain for each submission; rather, a single e-mail listing the submissions awaiting review should be sent out each day to the Club Captain.</li> </ol> </li> </ol>
Extensions	None
Sub-variations	None
Superordinate Use Cases	Invite Members to Renew Membership
Subordinate Use Cases	Handle Membership Renewal Review Membership Submission

<b>Use Case</b>	<b>Handle New Member Registration</b>
<b>Secondary Actors</b>	Club Captain
<b>Open Issues</b>	Registration declaration needs to be finalised

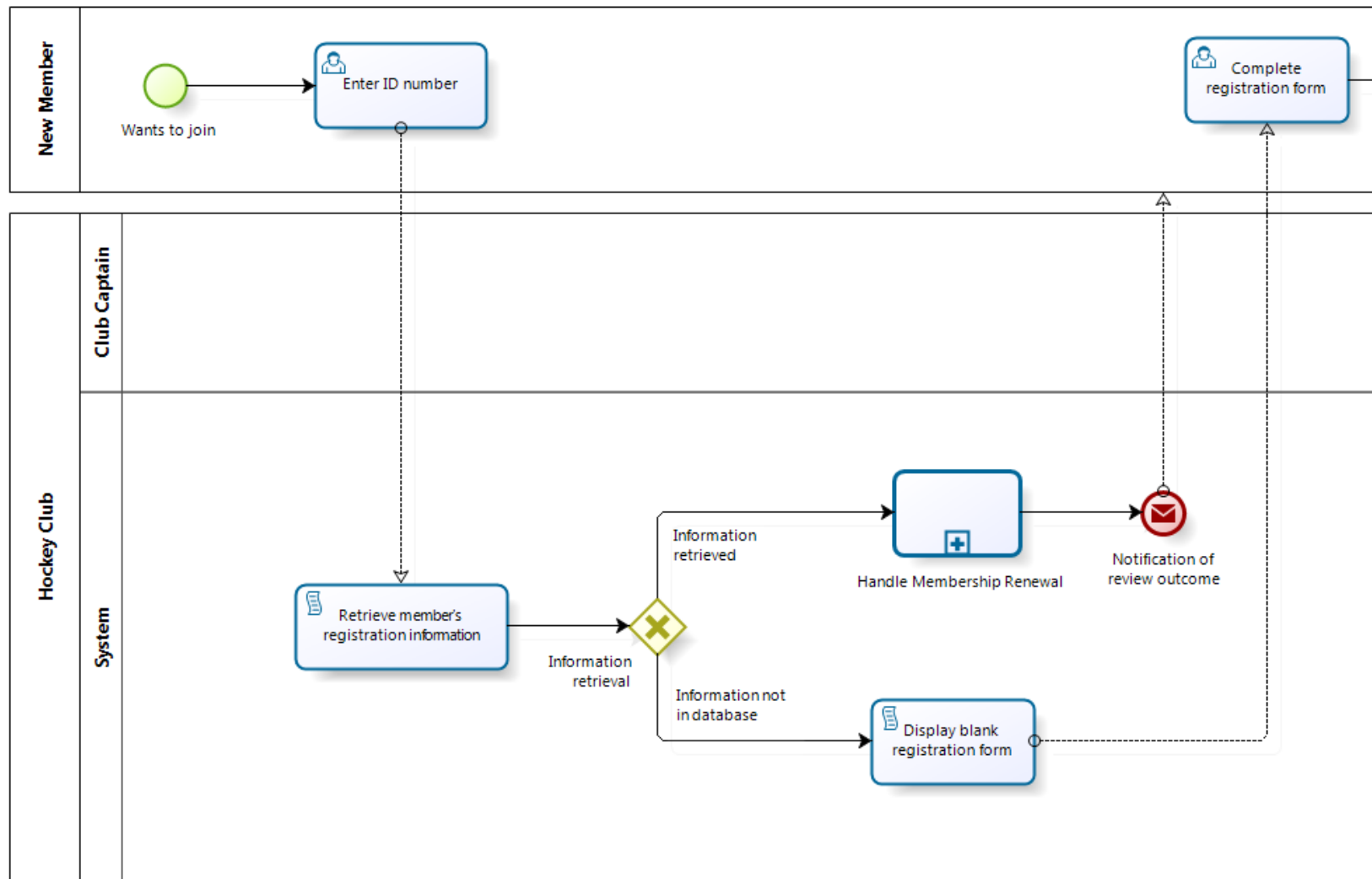
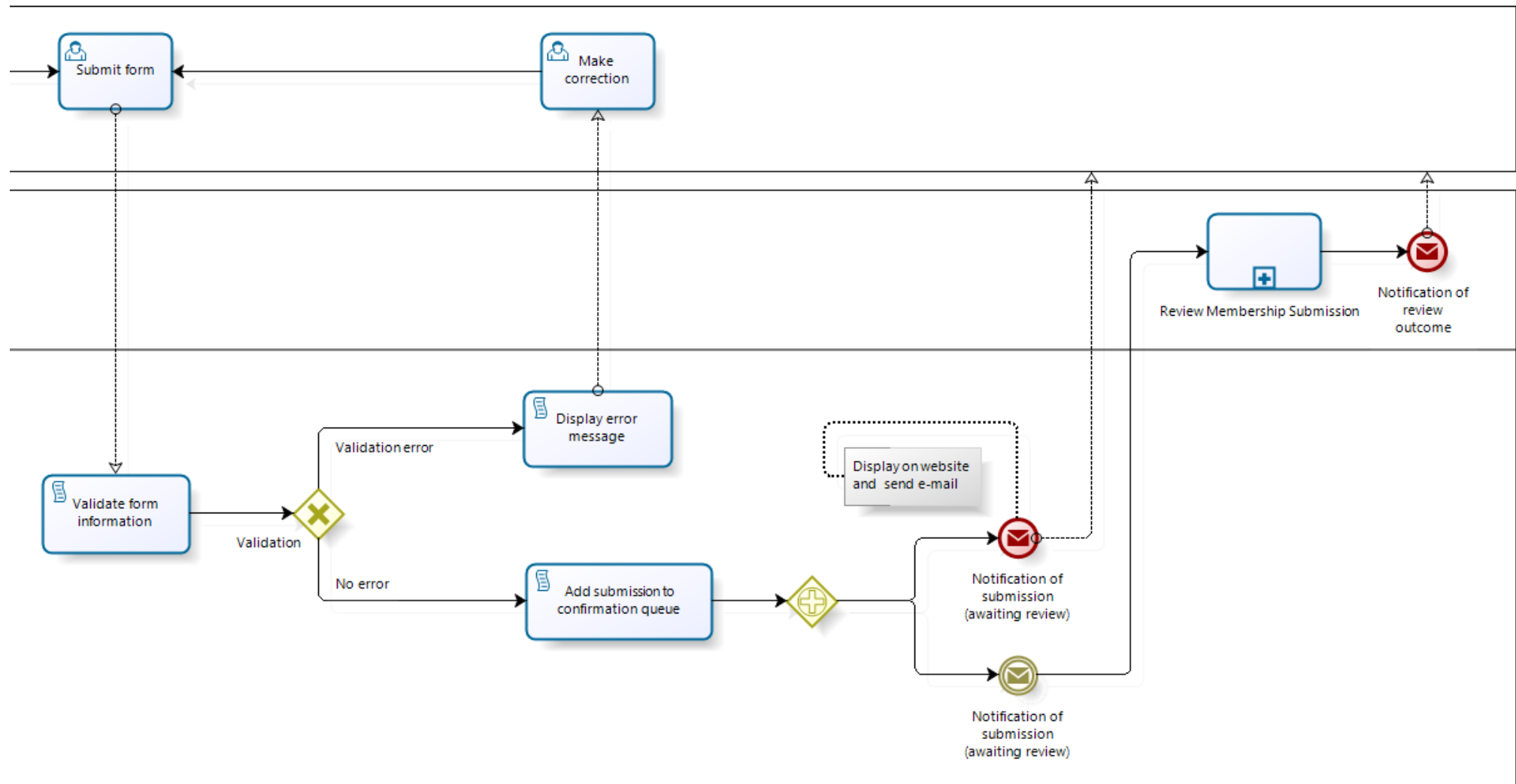


Figure 10: Handle New Member Registration process diagram



### 6.1.2.3. User Interface Design

The flow of the pages is as follows:

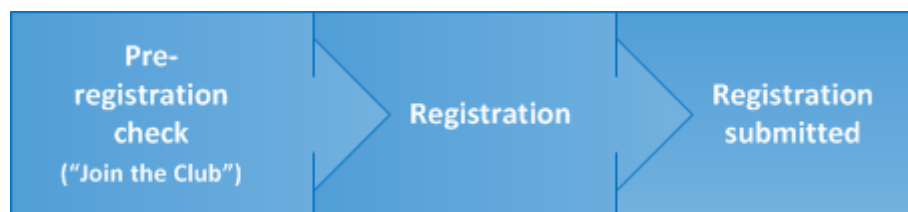


Figure 11: Handle New Member Registration page flow

The screen design for each page is shown below.

The page design for the 'Pre-registration check' page features a blue header with a circular logo placeholder and the text 'CLUB NAME'. A search bar labeled 'Search the site' is positioned on the right. Below the header is a navigation menu with links: Home | Membership | Calendar | Fixtures | Teams | Photos | About the Club | Venue Hire | Links | Contacts. The main content area is titled 'JOIN THE CLUB'. It includes a form for 'ID/Passport Number' with a text input field and two buttons: 'Begin Registration' and 'Cancel'. To the right of the form, there is a section for 'Upcoming Events' listing three events with dates and times. Below this is a blue button labeled 'Join the club'. Further down is a 'Sponsors' section with four placeholder boxes labeled 'Logo'. The footer contains a 'Log in' link on the left and 'Copyright' text on the right.

Figure 12: Pre-registration check ("Join the Club") page design

LOGO

CLUB NAME

Search the site

Home | Membership | Calendar | Fixtures | Teams | Photos | About the Club | Venue Hire | Links | Contacts

## REGISTER AS A NEW MEMBER

ID/Passport Number

Number from Join the Club form

Gender \*

☒ Male ☐ Female

Title \*

-- Select --

First Name \*

Last Name \*

Nickname

Date of Birth (DD/MM/YYYY) \*

-- / -- / --

E-mail Address \*

Telephone Number (Home)

-- -- --

Telephone Number (Work)

-- -- --

Telephone Number (Cellphone) \*

-- -- --

Address \*

Suburb \*

-- Select --

Membership Type \*

-- Select --

Payment Option \*

-- Select --

### Work

Occupation

Company

### Upcoming Events

2012/01/01 Event 1 (11:00 am)  
2012/01/02 Event 2 (12:00 pm)  
2012/01/03 Event 3 (1:00 pm)

Join the club

### Sponsors

Logo

Logo

Logo

Logo

Project #101

Last updated: 30 July 2012

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## Club Affiliations

Previous Club

Do you have a clearance letter? ☒ Yes ☐ No

Do you have any outstanding fees? ☒ Yes ☐ No

## Umpiring

Are you prepared to umpire games? ☒ Yes ☐ No

Umpire grading level (if you have one)

## Declaration

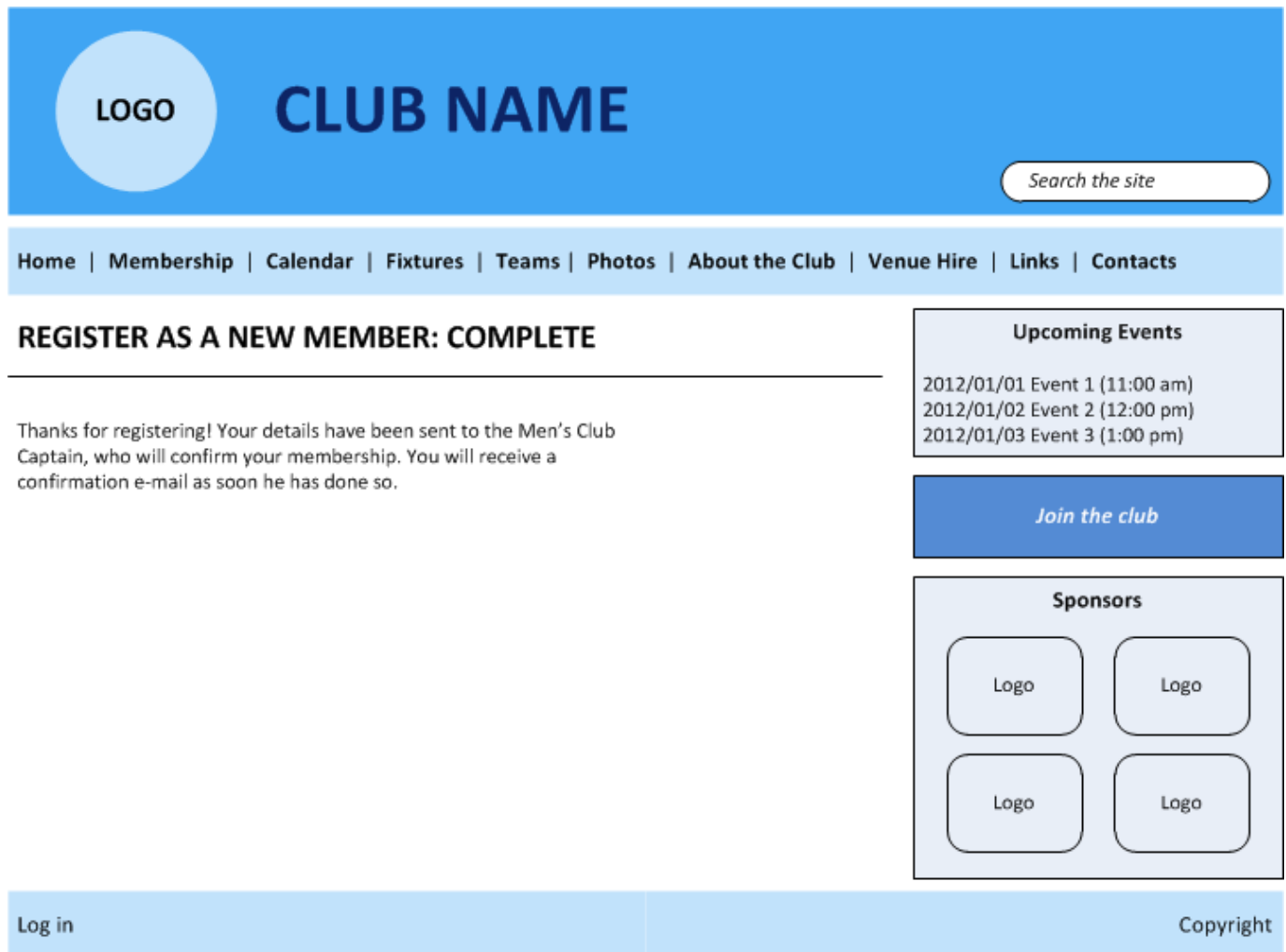
*To be finalised. Will include liability waiver, acknowledgement of liability for fees, agreement to abide by constitution, etc.*

Log in

Copyright

Figure 13: Registration page design





The design shows a registration confirmation page. At the top is a blue header with a circular logo placeholder labeled 'LOGO', the text 'CLUB NAME', and a search bar labeled 'Search the site'. Below the header is a navigation bar with links: Home | Membership | Calendar | Fixtures | Teams | Photos | About the Club | Venue Hire | Links | Contacts. The main content area is split into two columns. The left column has a heading 'REGISTER AS A NEW MEMBER: COMPLETE' followed by a message: 'Thanks for registering! Your details have been sent to the Men's Club Captain, who will confirm your membership. You will receive a confirmation e-mail as soon he has done so.' The right column contains three sections: 'Upcoming Events' with a list of three events (2012/01/01 Event 1 (11:00 am), 2012/01/02 Event 2 (12:00 pm), 2012/01/03 Event 3 (1:00 pm)), a blue button labeled 'Join the club', and a 'Sponsors' section with four rounded rectangular logo placeholders. At the bottom is a light blue footer with 'Log in' on the left and 'Copyright' on the right.

**Figure 14: Registration submitted page design**

#### 6.1.2.4. Data and Form Validation

Validation should be done in real-time and client-side (using JavaScript) where possible. However, there must be server-side validation for all fields, even for those where there is client-side validation (as this cannot be relied upon; it is primarily to enhance the user's interaction with the system).

The following are general validation guidelines (to be applied to all fields):

- Captured information must be validated against the field's type and length as shown in the data model (Figure 8).
- Captured information must be trimmed to remove whitespace from the beginning and end of it.
- Required information (indicated by the red asterisk in the interface diagram above) must be entered by the user and must be greater than zero characters in length after trimming.

The following are specific validation checks for certain types of data:

- Date of Birth:
  - Must be in the format DD/MM/YYYY.

- Must be a valid date (for example, 31/02/2012 is in the right format but not a valid date).
- Telephone numbers:
  - Must contain only digits.
  - Must be 10 digits in length.

### 6.1.3. Handle Membership Renewal (FRQ 1.3.)

#### 6.1.3.1. To-be Process

The process is detailed in Figure 16.

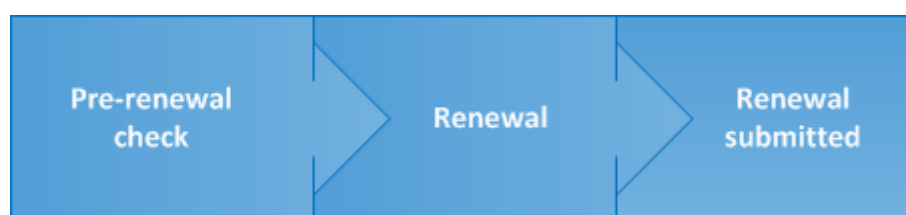
#### 6.1.3.2. Use Case

Use Case	Handle Membership Renewal
Use Case No.	3.0
Goal in Context	Renew a membership for the new season, confirming or updating the member's details in the process.
Scope	Hockey Club Website and Management Solution
Level	Subordinate
Preconditions	The member must have chosen to renew their membership and their data must have been retrieved from the database.
Success End Condition	The new member's details are submitted to the Club Captain for review.
Failed End Condition	None
Primary Actor	System
Trigger	The Member visits the Website registration page and enters their ID number.
Main Success Scenario	<ol style="list-style-type: none"> <li>1. The system displays the registration form (see Figure 13) to the Returning Member. The form must be pre-populated with the member's information, which was retrieved from the database.</li> <li>2. The Returning Member checks their registration information. If any information has changed, they update it and submit the form; if not, they just submit the form.</li> <li>3. The system then validates the information.               <ol style="list-style-type: none"> <li>a. If there is an error, the system displays an error message and indicates the problematic fields.</li> <li>b. The New Member makes a correction and submits the form again.</li> </ol> </li> <li>4. If (or when) there are no errors, the New Member's submission is added to the</li> </ol>

Use Case	Handle Membership Renewal
	<p>confirmation queue for the Club Captain to review. Simultaneously:</p> <ol style="list-style-type: none"> <li>The New Member is notified, via a message on the Website and an e-mail, that their submission is awaiting review.</li> <li>The Club Captain is notified of the submission, which they must review. This they do during the Review Membership Submission process, the result of which is a notification to the member to tell them the outcome of the review. A notification must not be sent to the Club Captain for each submission; rather, a single e-mail listing the submissions awaiting review should be sent out each day to the Club Captain.</li> </ol>
Extensions	None
Sub-variations	None
Superordinate Use Cases	<p>Invite Members to Renew Membership</p> <p>Handle New Member Registration</p>
Subordinate Use Cases	Review Membership Submission
Secondary Actors	<p>Returning Member</p> <p>Club Captain</p>
Open Issues	Registration declaration needs to be finalised

### 6.1.3.3. User Interface Design

The page flow is similar to the Handle New Member Registration flow:



**Figure 15: Handle Membership Renewal page flow**

The form for the process is the same as that used for the registration process, except that the information for the following fields must be shown but cannot be modified (because none of it should change):

- ID/Passport Number
- Gender
- Title

- First Name
- Last Name
- Date of Birth
- Previous Club
- Do you have a clearance letter?
- Do you have outstanding fees?

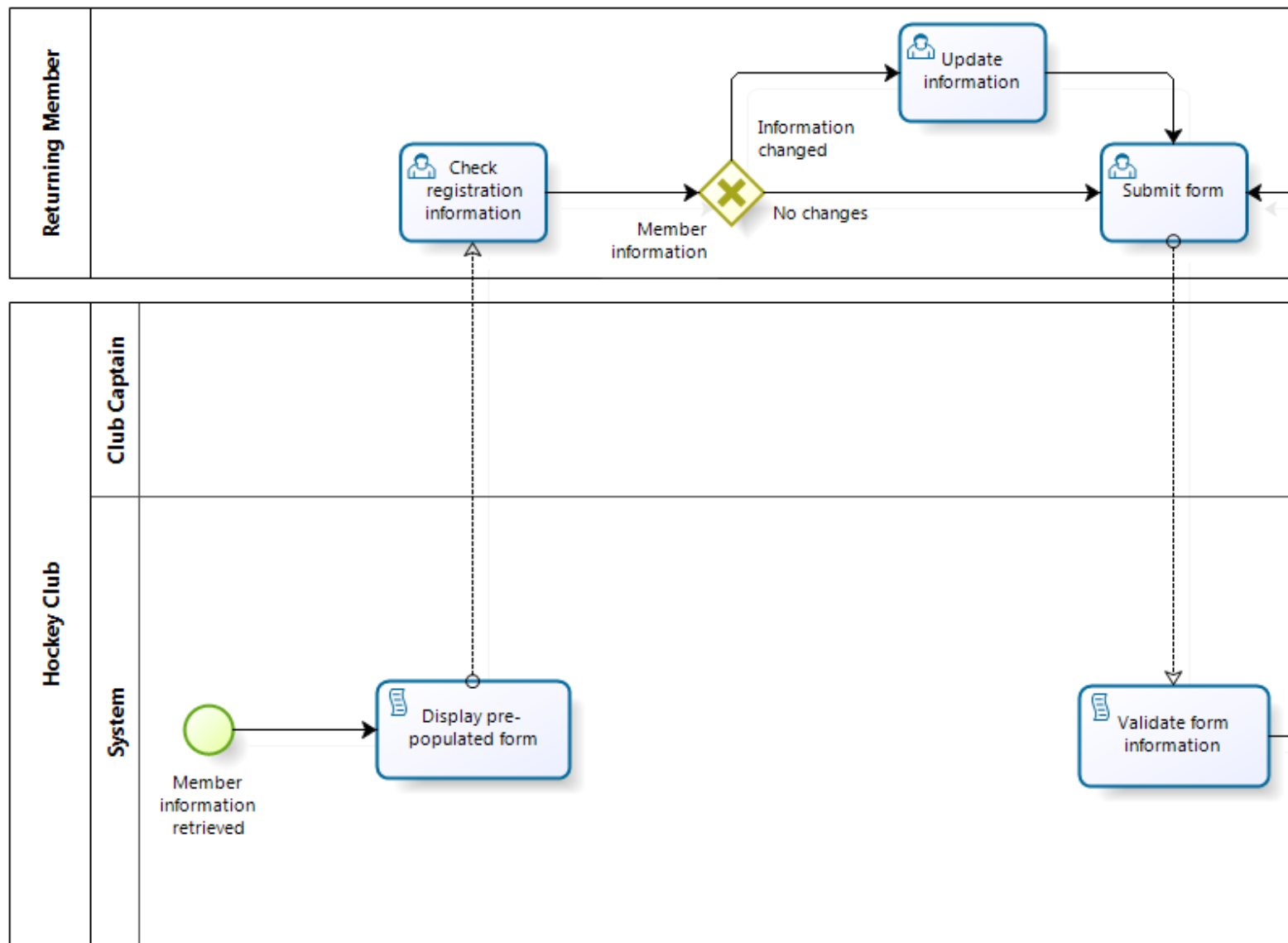
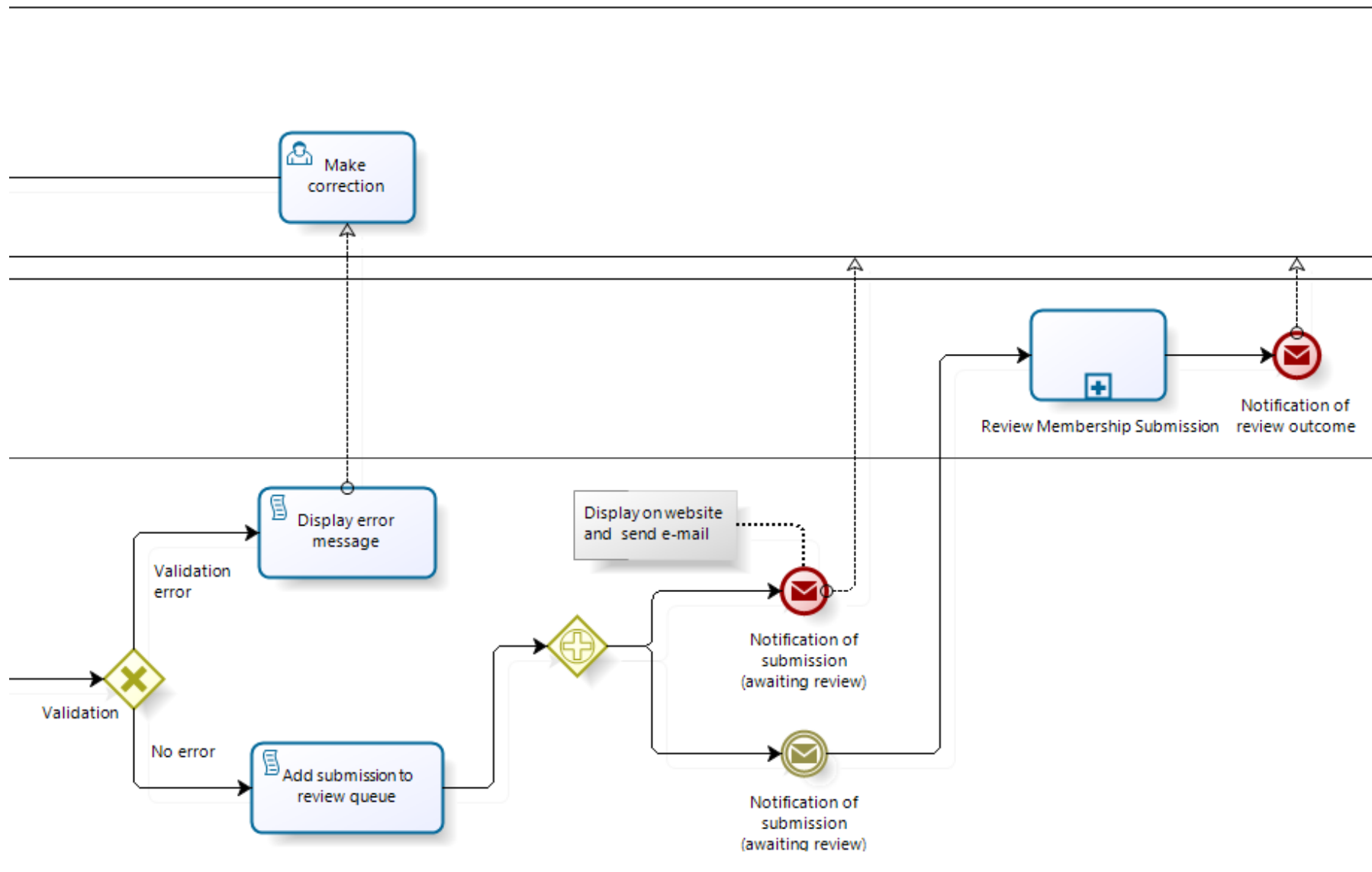


Figure 16: Handle Membership Renewal process diagram



## 6.1.4. Review Membership Submission (FRQ 1.4.)

### 6.1.4.1. To-be Process

The process is detailed in Figure 18.

### 6.1.4.2. Use Case

Use Case	Review Membership Submission
Use Case No.	4.0
Goal in Context	Approve or reject a membership submission.
Scope	Hockey Club Website and Management Solution
Level	Subordinate
Preconditions	The member has submitted their registration information.
Success End Condition	The membership submission is approved.
Failed End Condition	The membership submission is rejected.
Primary Actor	Club Captain
Trigger	The member submits a membership request, which is added to the review queue.
Main Success Scenario	<ol style="list-style-type: none"> <li>1. The Club Captain receives an e-mail listing the submissions awaiting review.</li> <li>2. They check the information each member has submitted. The submissions are review individually.</li> <li>3. If the Club Captain has an issue with the information, they must resolve it. Depending on the issue, they may need to consult the member (as opposed to, for example, simply updating the member's details to correct a spelling mistake).</li> <li>4. If there is no issue or the issue has been satisfactorily resolved: <ol style="list-style-type: none"> <li>a. The Club Captain approves the submission.</li> <li>b. The system records the approval.</li> <li>c. The system updates the member list.</li> <li>d. The New or Returning Member is notified via e-mail that their submission has been approved.</li> </ol> </li> <li>5. If the issue cannot be resolved: <ol style="list-style-type: none"> <li>a. The Club Captain rejects the submission.</li> <li>b. The system records the rejection. A reason must be captured.</li> </ol> </li> <li>6. The New or Returning Member is notified via e-mail that their submission has been rejected, together with the reason.</li> </ol>
Extensions	None

Use Case	Review Membership Submission
Sub-variations	None
Superordinate Use Cases	Invite Members to Renew Membership Handle New Member Registration Handle Membership Renewal
Subordinate Use Cases	None
Secondary Actors	New or Returning Member System
Open Issues	None

#### 6.1.4.3. User Interface Design

The screen design for this page is shown in Figure 17. A list of submissions is displayed and the Club Captain can choose to approve or reject each submission, or update the member's details (which takes them to the Update Members Registration screen discussed in Section 6.1.5). If they choose to approve, the entry is taken off the list; if they choose to reject, a dialog pops up for them to add a reason (which the member is e-mailed) and then the entry is removed from the list.



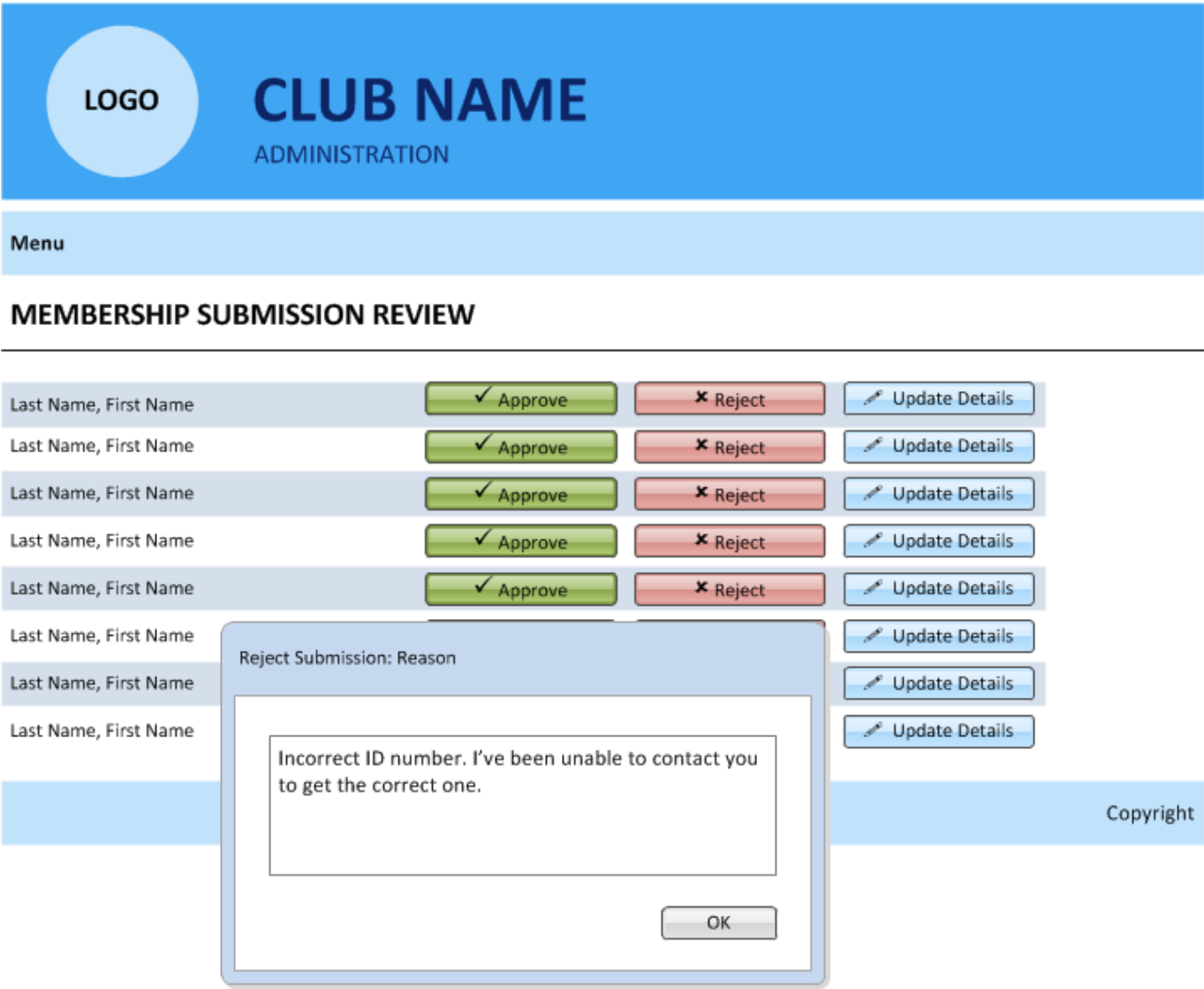


Figure 17: Membership Submission Review page design

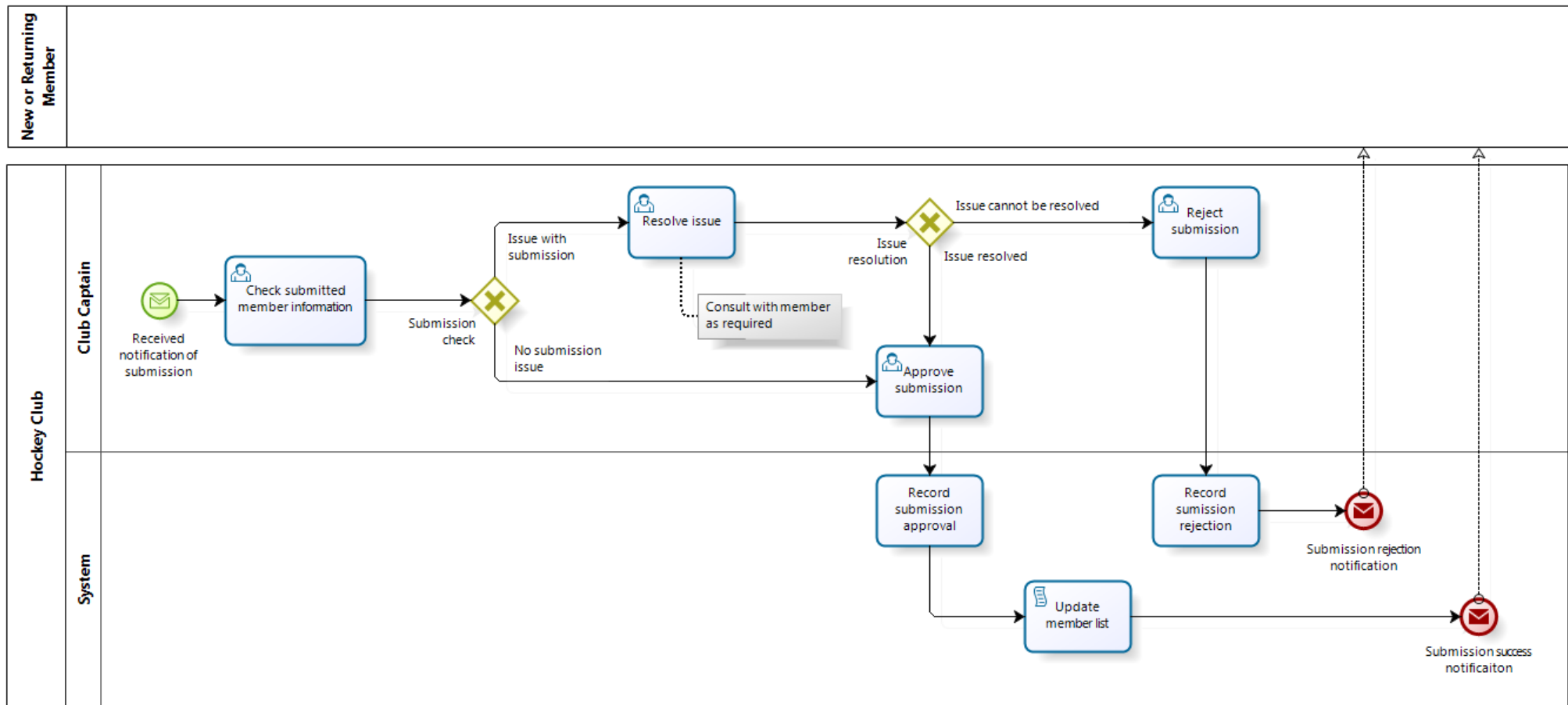


Figure 18: Review Membership Submission process diagram

### 6.1.5. Update Member's Registration Details (FRQ 1.5.)

The Club Captain must be able to view and modify all the information for a particular club member, in order to be able to correct it as required. This includes:

- All the information that the member cannot modify (listed in Section 6.1.3.3), such as their gender and ID/passport number.
- Season-specific information such as their membership type.
- Internal flags: `Member.Is_Active` and `Member_Season.Is_Playing`.

The interface for this will be based on that presented in Figure 13.

### 6.1.6. Upload Selection Lists (FRQ 2.1.) / View Selection Lists (FRQ 3.1.)

The Club Captains must be able to upload selection list files. The men's and ladies' lists will be uploaded separately. Only the following file formats must be accepted:

- Microsoft Word 2007 – 2010 (.DOCX)
- Microsoft Word 97 – 2003 (.DOC)
- Microsoft Excel 2007 – 2010 (.XSLX)
- Microsoft Excel 97 – 2003 (.XLS)
- Portable Document Format (.PDF)

When uploading a list, the Club Captain must be able to specify the gender and week(s) it is for (a list may be valid for more than one week).

The files must be posted as downloadable files – they do not have to be processed and their content displayed on the Website. All the lists uploaded during the season must be displayed on the selections page.

### 6.1.7. Upload Fixture List (FRQ 2.2.) / View Fixtures (FRQ 3.2.)

The Club Captains must be able to upload fixtures list file, which is an Excel file provided by the hockey union. An example file has been provided (see Section 1.3). The file must be parsed to extract the club's fixtures and an appropriate output (HTML) file produced to be displayed on the Website. (Alternatively, the fixtures should be put in a database table – see Issue 2.)

The layout of the fixtures display page is shown in Figure 19. When the user clicks on one of the week links at the top of the page, the page must scroll down to the relevant week's fixture list.

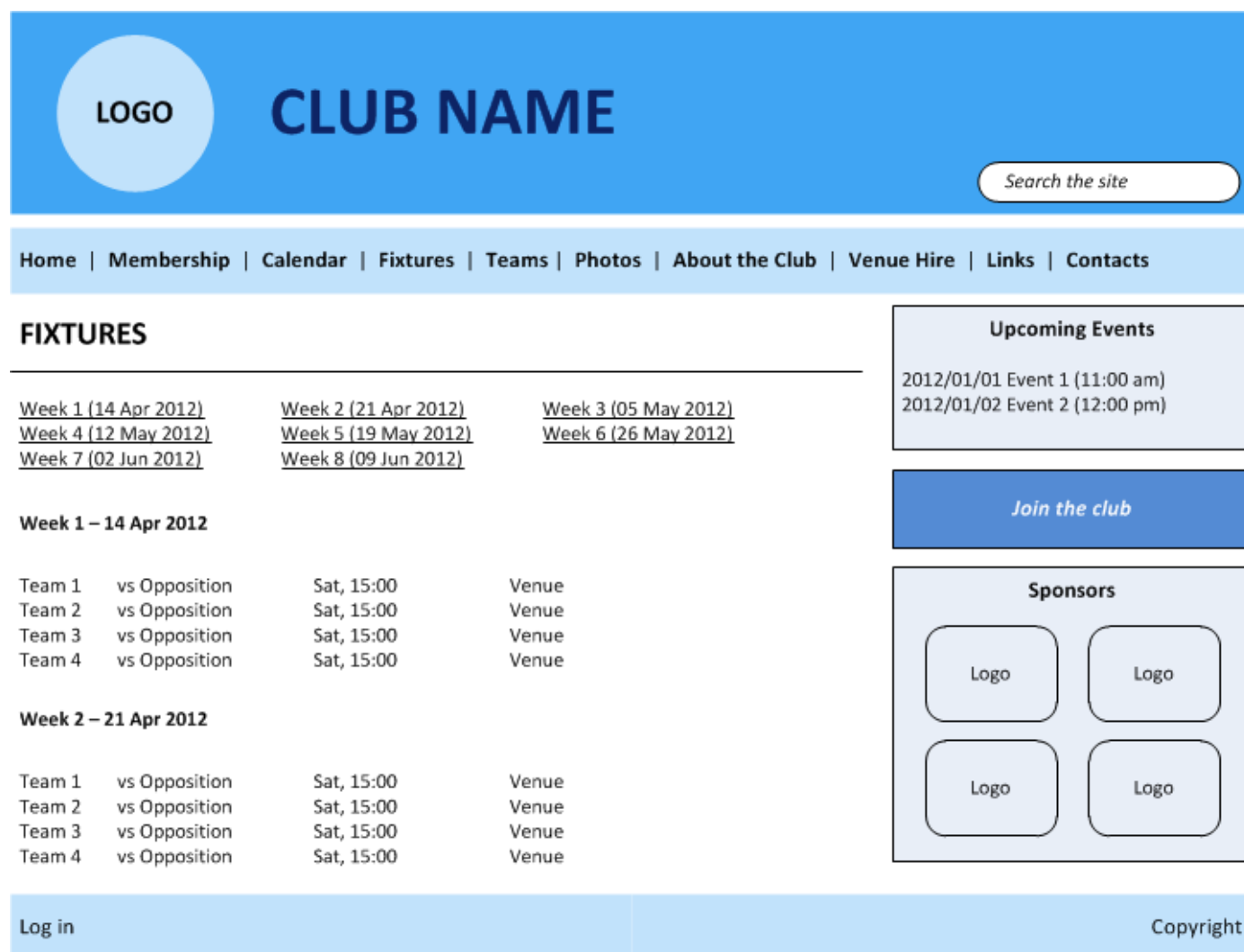


Figure 19: Fixtures page design

### 6.1.8. Post Event Calendar Items (FRQ 2.4.) / View Event Calendar (FRQ 3.3.)

Multiple plugins exist for managing event calendars. An appropriate one must be selected, installed and configured. It must meet the following criteria:

1. It must dynamically generate an updated list of upcoming events to be shown in the sidebar (as illustrated in Figure 5). The date, title and start time of each event must be shown in the list. At least the next three upcoming events must be shown.
2. It must dynamically generate a full calendar of upcoming events that can be shown on its own page. It is preferable for this calendar to be graphic (i.e., use a grid layout with a month view – such as shown in Figure 20), rather than a list.
3. Past events must not be removed and will remain visible as a record.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	Jan 1 New Year's Day	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	Feb 1	2

**Figure 20: Example of preferred calendar layout**

#### 6.1.9. Post Photographs (FRQ 2.5.) / View Photographs (FRQ 3.4.)

Photographs will be uploaded to and managed in Google Picasa. A photo gallery must be displayed on the Website, but the management of the photographs does not have to be integrated with the Website.

The gallery must show the photo albums and the visitor must be able to browse through them. This functionality can be provided through a WordPress plugin, which will handle integration with Picasa.

#### 6.1.10. Manage Sponsor List (FRQ 2.7.)

The Chairperson must be able to manage the details of the sponsor list that is shown on the Website. They must be able to add new sponsors and delete existing ones or modify their details, which includes being able to deactivate them. They must also be able to re-arrange the order in which the sponsors are displayed on the Website by dragging the sponsor's details "box". Figure 21 shows the design for the sponsor list management page.

LOGO

# CLUB NAME

ADMINISTRATION

Menu

## SPONSORS

LOGO

Name

Website http://

Motto

Active ☒

Image

X

LOGO

Name

Website http://

Motto

Active ☒

Image

X

Drag to set display order

### Add New Sponsor

Name

Website http://

Motto

Image

Copyright

Figure 21: Sponsors management page design

### 6.1.11. Subscribe Member to Mailing List (FRQ 4.1.) / Send E-Mails to Mailing List (FRQ 4.2.)

There must be separate mailing lists for men and ladies. The solution must subscribe a member to the appropriate list as they join the club or renew their membership.

E-mails will be sent to the lists using the MailChimp Website. Each e-mail sent out will have an unsubscribe link at the bottom of it, so members can remove themselves from the lists if they desire to do so.

The details required for the solution to connect to MailChimp and subscribe members must be stored in the database. However, they will not be maintained through the administration front-end (as they will not change frequently); rather, the developers will manage them as required.

### 6.1.12. Add New Season (FRQ 5.1.)

The Chairperson must be able to set up the new season in the solution, which will enable other options to be set (such as the season's fees and committee details). The Chairperson must define the season's start and end dates. The newly-added season becomes the current season, and the past season's selection lists and fixtures must be cleared from the solution.

### 6.1.13. Set Member Types (FRQ 5.2.) / Set Subscription Fees (FRQ 5.3.) / Set Payment Options (FRQ 5.4.)

The Treasurer must be able to:

- Add new member types and configure existing ones
- Set the subscription fee for each type
- Specify the payment options (each of which will be available for each member type).

The relationship is illustrated in Figure 22. These options will be set up at the beginning of each season after the Chairperson has set up the current season.



**Figure 22: Diagram of relationship between member type, subscription fee and payment options**

### 6.1.14. Define Portfolios (FRQ 5.5.)

The Chairperson must be able to define the various management portfolios. Not all of these are committee positions, so the solution must have a flag to indicate which portfolios on the Committee. This will also define how they are displayed on the Website (there must be a Committee members list and a list of those who hold the additional portfolios).

### 6.1.15. Set Holders of Portfolios (FRQ 5.6.)

The Chairperson must be able to set who holds each portfolio each season by selecting them from a list of registered club members (the portfolio holders must be registered club members).

### 6.1.16. Manage Administration System Users (FRQ 5.7.)

The Chairperson must be able to add and deactivate the users of the management system, as well as change their passwords. The users must also be registered members of the club.

## 6.2. Informational Requirements

The format and details for each report are specified in the sections below. All member reports and extracts must only include members who have registered for the current season and are active. Programmatically:

```
Member_Season.Season = <Current Season> AND Member.Is_Active = TRUE
```

All Excel exports must be in Excel 2007-2010 format (.XLSX).

### 6.2.1. Club Member Contact Details Extract (IRQ 1.1.)

Report details:

**Type:** Excel Export

**File Name:** <Club Name> - Members <Season> (YYYY-MM-DD).xlsx

*The date is the day the export is performed.*

**Worksheet 1 Title:** Ladies

**Worksheet 1 Heading:** <Club Name>, <Season>: Ladies

**Worksheet 2 Title:** Men

**Worksheet 2 Heading:** <Club Name>, <Season>: Men

Report format:

Report Column Title/Data	Notes
Last Name	
First Name	
E-mail	
Telephone (Cellphone)	Format: ### ### ####
Telephone (Home)	Format: ### ### ####
Telephone (Work)	Format: ### ### ####



Report Column Title/Data	Notes
Date of Birth	Format: YYYY-MM-DD
Occupation	
Company	
Suburb	
Postal Code	
Address	

### 6.2.2. Hockey Union Registration List (IRQ 1.2.)

Report details:

**Type:** Excel Export

**File Name:** <Club Name> - WPHU Registration <Season> (YYYY-MM-DD)

*The date is the day the export is performed.*

**Worksheet Title:** <Club Name>

**Worksheet Heading:** <Club Name>: Registration <Year (Season)>

Report format:

Report Column Title/Data	Notes
[Number]	Where [Number] is a running count (1 to total members).
Name	Format: Last Name, First Name
Cell No	Format: ### ## #
E-mail	
ID No	ID/passport number

### 6.2.3. Umpires List (IRQ 1.3.)

Report details:

**Type:** Excel Export

**File Name:** <Club Name> - WPHU Registration <Season> (YYYY-MM-DD).xlsx

*The date is the day the export is performed.*

**Worksheet Title:** Umpires

**Worksheet Heading:** <Club Name>: Registration <Year (Season)>

Note: this list is all members who noted during registration that they are prepared to umpire matches (Member.Is\_Prepared\_To\_Umpire = TRUE).

Report format:

Report Column Title/Data	Notes
Last Name	
First Name	
E-mail	
Telephone (Cellphone)	Format: ### ### ####
Telephone (Home)	Format: ### ### ####
Telephone (Work)	Format: ### ### ####
Umpire Grading Level	

### 6.2.4. Club Member Subscription Fee List (IRQ 2.1.)

Report details:

**Type:** Excel Export

**File Name:** <Club Name> - Member Fees <Season> (YYYY-MM-DD).xlsx

*The date is the day the export is performed.*

**Worksheet 1 Title:** Fees

**Worksheet 1 Heading:** (None)

**Worksheet 2 Title:** Payment Options

**Worksheet 2 Heading:** (None)

**Worksheet 3 Title:** Members

**Worksheet 3 Heading:** (None)

The worksheets are as follows:

- Fees: all member types and the associated fees.
- Payment Options: all payment options.
- Members: all members and their fee and payment option details.

Report format:

Worksheet	Report Column Title/Data	Notes
<b>Fees</b>	Member Type	
	Fee	
<b>Payment Options</b>	Id	A unique id for reference from the Members worksheet (the database id can be used).
	Name	
	Description	
<b>Members</b>	Name	Format: Last Name, First Name
	[Member Type]	Each Member Type must be a separate column and if the member is of this type there must be a 1 in the column.
	Payment Option	The id of the option, which links to the Payment Option worksheet.
	Amount Owed	The total fee owed by the member (dependent on their membership type).
	Amount Paid	This is blank – it will be filled out by the treasurer.
	Amount Outstanding	Amount Owed - Amount Paid
	Fully Paid	If Amount Outstanding = 0, show 1 in this column and highlight the row in green.

Worksheet	Report Column Title/Data	Notes
	Partially Paid	If (Amount Outstanding < Amount Owed) AND (Amount Outstanding > 0), show 1 in this column and highlight the row in blue.
	Unpaid	If Amount Outstanding = Amount Owed, show 1 in this column and highlight the row in red.
	Overpaid	If Amount Outstanding < 0, show 1 in this column and do not highlight the row (i.e., it will be white)

The following is an example of the report, showing the row highlighting based on the status of the member's fee:

Name	Senior (Astro)	Student (Grass)	Non-Playing	Payment Option	Amount Owed	Amount Paid	Amount Outstanding	Fully Paid	Partially Paid	Unpaid	Overpaid
Last, First	1			1	1400		1400	0	0	1	0
Last, First	1			3	1400	400	1000	0	1	0	0
Last, First	1			1	1400		1400	0	0	1	0
Last, First	1			1	1400	1400	0	1	0	0	0
Last, First		1		3	950	650	300	0	1	0	0
Last, First	1			3	1400		1400	0	0	1	0
Last, First		1		3	950	1750	-800	0	0	0	1
Last, First			1	1	150		150	0	0	1	0

### 6.2.5. Web Traffic Report (IRQ 3.1.)

The solution must be integrated with Google Analytics, which provides comprehensive reporting. This can be done using a WordPress plugin such as Google Analyticator.

### 6.2.6. Cellphone Number Extract (IRQ 3.2.)

Report details:

**Type:** Excel Export

**File Name:** <Club Name> - Member Cellphone Numbers <Season> (YYYY-MM-DD).xlsx

*The date is the day the export is performed.*

**Worksheet Title:** Cellphone Numbers

**Worksheet Heading:** (None)

Note: this report must not have any heading or column names in the worksheet because the SMS system does not use them.

Report format:

Report Column Title/Data	Notes
Full Name	Last Name, First Name
Last Name	
First Name	
Cellphone Number	Format: 27##### – country code (27) followed by the cellphone number without the preceding zero (i.e., 27 and nine numbers).

## 6.3. Non-functional Requirements and Solution Constraints

### 6.3.1. Security (NRQ 1.)

Access to the administration functionality of the Website must be controlled and limited through the use of a user name and password. Each user that has access to the system must have their own credentials.

All Committee members must have access to all reports, the mailing list and their individual portfolio e-mail addresses. The Umpires Delegate is not a Committee portfolio and so will not have direct access to the reports; they can obtain what they need through a Committee member.

Access to certain functions must be restricted as shown in the access control matrix below (“R” indicates read-only access).

Requirement	Public	Committee	Chairperson	Club Captain	Secretary	Social Convener	Treasurer	Umpires Delegate
<b>FUNCTIONS</b>								
Invite Members to Renew Membership (FRQ 1.1.)				•				
Handle New Member Registration (FRQ 1.2.)				•				
Handle Membership Renewal (FRQ 1.3.)				•				
Review Membership Submission (FRQ 1.4.)			R	•	R			
Update Member’s Registration Details (FRQ 1.5.)				•	•			
Upload Selection Lists (FRQ 2.1.)				•				

Requirement	Public	Committee	Chairperson	Club Captain	Secretary	Social Convenor	Treasurer	Umpires Delegate
Upload Fixture List (FRQ 2.2.)				•				
Post Event Calendar Items (FRQ 2.4.)						•		
Post Photographs (FRQ 2.5.)						•		
Manage Sponsor List (FRQ 2.7.)			•					
View Selection Lists (FRQ 3.1.)	•							
View Fixtures (FRQ 3.2.)	•							
View Event Calendar (FRQ 3.3.)	•							
View Photographs (FRQ 3.4.)	•							
Subscribe Member to Mailing List (FRQ 4.1.)								
Send E-Mails to Mailing List (FRQ 4.2.)		•						
Add New Season (FRQ 5.1.)			•					
Set Member Types (FRQ 5.2.)							•	
Set Subscription Fees (FRQ 5.3.)							•	
Set Payment Options (FRQ 5.4.)							•	
Define Portfolios (FRQ 5.5.)			•					
Set Holders of Portfolios (FRQ 5.6.)			•					
Manage Administration System Users (FRQ 5.7.)			•					
<b>REPORTS</b>								
Club member contact details		•						
Hockey union registration list					•			
Umpires list				•				•
Club member subscription fee information							•	
Web traffic report			•					
Cellphone number extract						•		

Table 11: Access control matrix

### 6.3.2. Technologies To Be Used (NRQ 2.)

The solution must be created using technologies that are not proprietary to the development vendor and the solution's full source code is a deliverable for the project. The Committee must also be given all the access details for the services the solution uses (for example, the user name and password used for Google Picasa).

### 6.3.3. Backup (NRQ 3.)

There must be an automated procedure to back up the database once a day and the Website's content files must be backed up at least once a week (this can be a manual operation if necessary).

### 6.3.4. Disaster Recovery (NRQ 4.)

A disaster recovery plan must be delivered with the solution. It must enable a developer who is not familiar with the system to restore it to its pre-disaster state.

In particular, the plan should include (but not be limited to) the following details:

- Environment configuration
- Set up of the applications' files
- Restoring content files from a backup
- Restoring the database from a backup.

### 6.3.5. Content Management (NRQ 5.)

The Committee must be able to manage the content of the Website without technical knowledge and with basic computer skills (for example, they should not have to be familiar with HTML).

### 6.3.6. Cross-browser Support (NRQ 6.)

The solution must display properly and look as similar as possible in all major browsers. W3C compliance is preferable but not a strict requirement, as long as any errors reported by a validation tool are immaterial.

### 6.3.7. Speed (NRQ 7.)

The solution must function reasonably quickly so as to give a good user experience. Client-side validation should be used where possible in order to facilitate this. Page loading times must be as low as possible.

### 6.3.8. Search Engine Optimisation (NRQ 8.)

The Website must be optimised for search engines. To this end, the following must be done:

- The following WordPress permalink structure must be used: `/%year%/category/%postname%/`
- An XML sitemap must be provided
- The site's template must be optimised.

SEO can be managed through the use of a WordPress plugin.

### 6.3.9. User Interface (NRQ 9.)

The user interface must be designed to be used by a wide variety of users, who will have varying levels of computer experience and knowledge. Good user experience and design principles must be applied.

The look and feel of the solution is important. It must use the club's colours and create a feeling of excitement about the club in order to attract new members.

#### 6.3.10. Disk Space for New Content (NRQ 10.)

The Website hosting package must provide enough disk space to cover the size of the solution's files, the database and the portfolio e-mail accounts. There must also be a reasonable amount of free space in order to allow for new content to be added.

The chosen Serve 1 package from Serve-Hosting (refer to the business case for details) meets these requirements and can be easily upgraded if required.

#### 6.3.11. Report/List Excel Format (NRQ 11.)

All Excel exports must be in Excel 2007-2010 format (.XLSX).



## 7. PROJECT TASKS AND SCHEDULE

The task list is shown in Table 12 and the project schedule is shown in Figure 23. The developers will be assigned as is required to meet the schedule.

ID	Task Name	Man Hours	Person	Dependent On	Start	Finish
	<b>Initial Investigation</b>	<b>15.00</b>			<b>2012/04/02</b>	<b>2012/04/18</b>
1	Initial project meeting	2.00	PM, BA		2012/04/02	2012/04/02
2	High-level project plan and effort estimates	2.00	PM, BA	1	2012/04/03	2012/04/03
3	Workshop 1	2.00	PM, BA	2	2012/04/04	2012/04/04
4	Business Case writing	8.00	BA	3	2012/04/05	2012/04/10
5	Client review of Business Case			4	2012/04/11	2012/04/13
6	Business Case revision	1.00	BA	5	2012/04/16	2012/04/16
7	Client sign off of Business Case			6	2012/04/17	2012/04/18
	<b>Establish Project</b>	<b>4.00</b>			<b>2012/04/19</b>	<b>2012/07/20</b>
8	Project Definition Document writing	4.00	PM	7	2012/04/19	2012/04/20
9	Sign-off of Project Definition Document			8	2012/04/23	2012/04/24
10	Contract signed			8	2012/04/23	2012/07/20
	<b>Detailed Analysis and Solution Design</b>	<b>18.00</b>			<b>2012/07/23</b>	<b>2012/08/10</b>
11	Workshop 2	4.00	BA	10	2012/07/23	2012/07/24
12	Functional Specification writing	12.00	BA	11	2012/07/25	2012/07/31
13	Client review of Functional Spec.			12	2012/08/01	2012/08/03
14	Functional Spec. revision and review	2.00	BA	13	2012/08/06	2012/08/06
15	Client sign off of Functional Spec.			14	2012/08/07	2012/08/10
	<b>Solution Construction</b>	<b>69.25</b>			<b>2012/08/13</b>	<b>2012/08/27</b>
16	Framework	0.50	Dev	15	2012/08/13	2012/08/13
	<i>Database implementation</i>	0.25				
	<i>Project setup</i>	0.25				
17	Configuration	2.00	Dev	16	2012/08/13	2012/08/13
	<i>CMS, including SEO</i>	0.50				
	<i>Mailing lists</i>	0.50				
	<i>E-mail addresses</i>	0.50				
	<i>Backup process (NRQ 3.)</i>	0.50				
18	Functionality	51.25	Dev	17	2012/08/13	2012/08/22
	<i>CMS</i>	10.25				
	<i>Website theme design and dev.</i>	8.00				
	<i>View selection lists (FRQ 3.1.)</i>	0.50				
	<i>View fixtures (FRQ 3.2.)</i>	1.00				

	<i>View event calendar (FRQ 3.3.)</i>	<i>0.50</i>				
	<i>View photographs (FRQ 3.4.)</i>	<i>0.25</i>				
	<i>View match reports (FRQ 3.5.)</i>	<i>0.00</i>				
	<i>Administration System</i>	<i>41.00</i>				
	<i>Invite members to renew membership (FRQ 1.1.)</i>	<i>5.00</i>				
	<i>Handle new member registration (FRQ 1.2.)</i>	<i>5.00</i>				
	<i>Handle membership renewal (FRQ 1.3.)</i>	<i>5.00</i>				
	<i>Review membership submission (FRQ 1.4.)</i>	<i>5.00</i>				
	<i>Update member's registration details (FRQ 1.5.)</i>	<i>2.00</i>				
	<i>Upload selection lists (FRQ 2.1.)</i>	<i>0.50</i>				
	<i>Upload fixture list (FRQ 2.2.)</i>	<i>6.00</i>				
	<i>Post event calendar items (FRQ 2.3.)</i>	<i>0.25</i>				
	<i>Post photographs (FRQ 2.5.)</i>	<i>0.25</i>				
	<i>Post match reports (FRQ 2.6.)</i>	<i>0.00</i>				
	<i>Manage sponsor list (FRQ 2.7.)</i>	<i>3.00</i>				
	<i>Manage master data</i>	<i>3.50</i>				
	<i>Add new season (FRQ 5.1.)</i>	<i>0.50</i>				
	<i>Set member types (FRQ 5.2.)</i>	<i>0.50</i>				
	<i>Set subscription fees (FRQ 5.3.)</i>	<i>0.50</i>				
	<i>Set payment options (FRQ 5.4.)</i>	<i>0.50</i>				
	<i>Define portfolios (FRQ 5.5.)</i>	<i>0.50</i>				
	<i>Set holders of portfolios (FRQ 5.6.)</i>	<i>0.50</i>				
	<i>Manage administration system users (FRQ 5.7.)</i>	<i>0.50</i>				
	<i>Reports and lists</i>	<i>4.50</i>				
	<i>Excel export framework</i>	<i>2.00</i>				
	<i>Club member contact details</i>	<i>0.50</i>				
	<i>Hockey union registration list</i>	<i>0.50</i>				
	<i>Umpires list</i>	<i>0.50</i>				
	<i>Club member subscription fee information</i>	<i>0.50</i>				
	<i>Web traffic report</i>	<i>0.00</i>				
	<i>Cellphone number extract</i>	<i>0.50</i>				
	<i>Security (NRQ 1.)</i>	<i>1.00</i>				
	<i>Framework</i>	<i>0.50</i>				
	<i>Configuration</i>	<i>0.50</i>				
19	Write disaster recovery plan (NRQ 4.)	0.50	Dev	17, 18	2012/08/23	2012/08/23
20	Development testing	6.00	Dev	17, 18	2012/08/23	2012/08/23
	<i>Code testing</i>	<i>1.00</i>				
	<i>Code review</i>	<i>4.00</i>				

	<i>Performance testing</i>	0.50				
	<i>Security testing</i>	0.50				
21	Functional acceptance testing	8.00	BA, Dev	20	2012/08/24	2012/08/24
	<i>Testing</i>	4.00	BA			
	<i>Bug fixing and enhancements</i>	4.00	Dev			
22	User acceptance testing	9.00	User, BA, Dev	21	2012/08/27	2012/08/27
	<i>Testing</i>	4.00	User			
	<i>Testing feedback</i>	1.00	BA			
	<i>Bug fixing and enhancements</i>	4.00	Dev			
	<b>Implementation</b>	<b>10.00</b>			<b>2012/08/31</b>	<b>2012/09/07</b>
23	Training	4.00	BA	22	2012/08/28	2012/08/30
	<i>User training</i>	2.00				
	<i>Training documentation writing</i>	2.00				
24	Deployment	2.00	Dev	23	2012/08/31	2012/08/31
25	Go-live support	4.00	BA, Dev	24	2012/09/03	2012/09/07
	<b>Post-implementation Review</b>	<b>4.00</b>			<b>2012/09/10</b>	<b>2012/09/10</b>
26	Project review	4.00	PM, BA	25	2012/09/10	2012/09/10

Table 12: Task list



## 8. SOLUTION TESTING

The majority of testing will take place towards the end of the project once the development team has completed its work. It will be divided into three sections, the details of which are listed in Table 13 below.

Testing section	Description
<b>Development testing</b>	<p>The development team will do the following:</p> <ul style="list-style-type: none"><li>• Code tests, such as unit tests, to check that particular areas of the solution function as expected.</li><li>• A code review (by a senior developer) to assess the quality of the code and optimise it where possible.</li><li>• A brief performance assessment. Given the size and nature of the solution, performance is not a concern and therefore only minimal performance testing is required.</li><li>• A security test, but only at a high level because the development framework caters for many security needs (for instance, input validation to prevent SQL injection). Also, more thorough security testing will be done during functional acceptance testing.</li></ul>
<b>Functional acceptance testing</b>	<p>The business analyst will verify the solution's functionality to ensure it operates as expected and to ensure it matches the requirements detailed in this document.</p> <p>Minor bug fixes and enhancements may be required as a result of this testing.</p>
<b>User acceptance testing</b>	<p>The Committee will test the system to:</p> <ul style="list-style-type: none"><li>• Ensure that the solution meets their functional and quality requirements.</li><li>• Provide feedback on any required minor enhancements that may be developed prior to implementation or may become possible future work.</li><li>• Ensure that they are aware of the solution's performance, any known defects and any agreed-upon workarounds or changes.</li><li>• In order to manage expectations around what the implemented solution will deliver and not deliver.</li></ul> <p>Feedback will be given to the business analyst and minor bug fixes and enhancements may be required as a result of this testing.</p>

**Table 13: Testing details**

## 9. IMPLEMENTATION PLAN

The details of the implementation plan are listed in Table 14 below. The project schedule (section 7) shows the timing of the implementation.

Testing section	Description
<b>Training</b>	<p>The Committee as a whole will be given training by the business analyst on how to use the solution. Though the solution is designed to be user-friendly and simple to use, this training will ensure that the Committee is familiar with it before it is implemented and is available to the rest of the club and the public.</p> <p>The business analyst will provide basic training documentation to aid in this and to serve as a future reference.</p>
<b>Deployment</b>	<p>The steps for deployment are:</p> <ul style="list-style-type: none"><li>• Sign up with the new hosting provider (Serve Hosting).</li><li>• Request domain changes (to point the domain to Serve Hosting).</li><li>• Configure the hosting environment, which includes setting up the required e-mail addresses.</li><li>• Set up the solution's database.</li><li>• Install and configure the solution (WordPress and the Administration System). All external systems will have already been configured during the development phase of the project.</li></ul> <p>The domain changes will take up to 24 hours to complete, as they need to be propagated to servers around the world. When they complete the new Website will be online and functional.</p>
<b>Go-live support</b>	<p>The business analyst and development team will monitor the solution and handle any issues that may arise.</p>
<b>Project review</b>	<p>The project manager and business analyst will meet with the Committee to review the project and discuss possible future work to be done on the solution.</p>

**Table 14: Implementation details**

## 10. FUTURE WORK

The following items have been identified as possible future work:

- Match reports: as discussed in Section 3.3, this functionality has been removed from the scope of this project. However, it is still desired functionality.
- Customisable invitation e-mail template: the invitation template discussed in Section 6.1.1 is static and cannot be changed by the Club Captain – any changes will need to be made by a developer. The ability to customise the template could be added to the solution.
- Handle off-season sign-ups: the hockey club participates in the indoor and summer leagues that are run during the off-season. The ability for members to sign up for these could be added to the solution.
- Additional membership review step to involve the treasurer: as part of the membership review process, the treasurer could perhaps be involved so that they can confirm the member's fee. This would be particularly applicable if the member joins mid-season and their fee should be reduced.

## 11. APPENDICES

### 11.1. Master Data

#### 11.1.1. Member Type

Name	Rank
Senior (Astro)	1
Senior (Grass)	2
Student (Astro)	3
Student (Grass)	4
Scholar	5
Goalkeeper	6
Non-playing	7

#### 11.1.2. Portfolio

Name	Description	On Committee	Email	Rank	Is Active
Chairperson		1	chairperson@...	1	1
Vice-chairperson		1	vice-chairperson@...	2	1
President		1	president@...	3	1
Secretary		1	secretary@...	4	1
Treasurer		1	treasurer@...	5	1
Club Captain (Ladies)		1	ladiescapt@...	6	1
Club Captain (Men)		1	menscapt@...	7	1
House and Grounds Convenor		1	grounds@...	8	1
Refreshments Convenor		1	refreshments@...	9	1
Social Convenor		1	social@...	10	1
Match Secretary (Ladies)		0	matchsecladies@...	11	1
Match Secretary (Men)		0	matchsecmen@...	12	1


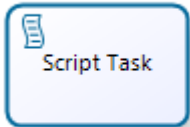
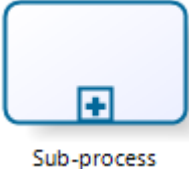
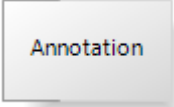

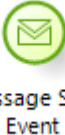
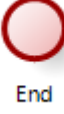
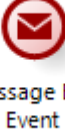









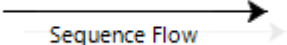
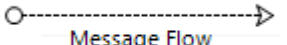
Name	Description	On Committee	Email	Rank	Is Active
Umpires Delegate		0	umpiresdelegate@...	13	1

### 11.1.3. Title

Name
Mr
Mrs
Miss
Ms
Dr
Prof.

## 11.2. Process Diagram Legend

	A simple activity performed by a user.		A simple activity performed by a script (the system).
	A summarised task that can be broken down into smaller tasks.		A note that provides additional information.
	The start of the process. There can be more than one way to start a process.		A message is sent at the start of the process.
	The end of the process. There can be more than one way to end a process.		A message is sent at the end of the process.

		 Error End Event	An error exception is sent at the end of the process.
 Gateway - Exclusive	Only one outgoing flow can be considered. It is a convergence used to merge alternative paths.	 Gateway - Parallel	All outgoing flows are executed at the same time. When merging, all incoming paths must complete before the outgoing flows are triggered.
 Message Send Event	An event where a message is sent.	 Message Receive Event	An event where a message is received.
 Timer Event	Shows a timespan.	 Timer Event	Shows a timespan.
 Sequence Flow		The control of flow and sequence of activities, gateways and events.	
 Message Flow		Shows the flow of messages (signals) between two entities.	