Business Case

Replacement of the Canadian Ski Patrol's National Database System (NDS)

Executive Summary

This project calls for the full replacement of the National Database System (NDS) in its present form (structure, hosting and coding language). Consolidation of the NDS with the website platform will be accomplished by outsourcing the installation, integration and transfer and normalization of data. Training for division representatives on the new system would be provided as part of the project. Finally, the maintenance and security of the new NDS and website environment will be maintained by the third-party supplier, reducing the reliance on volunteers while at the same time providing a secure hosting environment.

Background

The National Database System is the central membership records management system of the Canadian Ski Patrol. In its original version in 1999, the system was custom programmed by a long-serving CSP member with experience in database design and coding. The original coding language was Microsoft's ASPX.Net, a rather complex yet powerful programming language.

In 2002, the current version of the NDS was launched. The system also contained a shared files area (file repository) and the entire platform was custom-coded by CSP volunteers Pierre Charest, the current division president of Québec Division, and Charlie Turner of Ontario Division. Pierre is responsible for he coding and functionality while Charlie maintains the records and interfaces with the organization at all levels. The system was rebuilt around the PHP coding language. In 2016 the system was rewritten a third time in order to upgrade the PHP language when the hosting server changed to a Canadian-based company.

The NDS has maintained its user interface and structure since the second revision in the early 2000's. Since that time however, the technology used by our members to interact with the NDS has changed significantly, with mobile devices and tablets becoming more popular than traditional desktop computers and laptops. Calls for the NDS to be changed to adapt to a more user-friendly and mobile-responsive interface have grown year after year.

In 2018, a decision was made within the Brand and Partners portfolio that the NDS needed a refresh or replacement. The CSP has three main-platforms, none of them being easily compatible with each other, and requests to migrate to a single-session sign-on have been common. The custom coding of the NDS and the shrinking pool of knowledge in how to maintain it was listed as a risk. Integrating the current interface with modern, diverse hardware is becoming harder to stay current. Security and future maintenance concerns have mounted, and the identification of a suitable yet cost-effective solution became a priority.

Note that this project addresses the concerns raised in the 2019-2020 operational plan, under strategic priority six, and interfaces with three of the four strategic pillars (financial stability and sustainability, recruitment and retention, and expansion and diversification).

Analysis

A review of the existing infrastructure was conducted to ensure a complete understanding of how the current NDS is utilized. In 2018, a survey was sent out to zone and division presidents and the results were consolidated into a single report. In June 2018, several members of the IT team met with and interviewed all division presidents, management committee members, and as many other users as possible to review and create a "wish" list.

The IT team used the wish list to evaluate the existing database systems that were available. They ended up researching four options; remaining with the current system, migrating to a similar CSP-custom built program called ZIMS, a combination of WordPress (the core platform of the CSP's national website) and its associated plugins, and finally, integrating an open-source project called CiviCRM into our WordPress website.

Option 1 – Maintain the status quo with the current NDS (Solution Not Supported)

The present-day NDS is an 18-year old system. The structure and design of the database is not built around present-day standards for information management; in fact, it uses a structure that has not been popular for many years. To change the structure would require a complete re-write of the system.

The NDS is presently managed by three key individuals:

- Charlie Turner (Ontario Division) is the primary contact point for the NDS. Charlie is responsible for user issues, report generation, and change requests (once approved by the VP of Brand & Partners, currently the VP responsible for information technology).
- Drew Martin (Mountain Division) is Charlie's protégé. Drew has some experience in maintaining the system, and is the point of contact for the hosting provider, Webnames. Drew is only one of few people who can access and understand the file structure associated to Webnames.
- Pierre Charest (Québec Division) is the heart of the system. Pierre is a self-taught PHP programmer. Pierre's own ability however has been part of the problem, as the coding notes used by programmers to describe the various features of the system and how it works, are questionable. Furthermore, as French is Pierre's first language, his coding notes are written in French. This renders the ability for an outside PHP programmer to assist or take-over Pierre's role a potentially costly exercise, as some time learning the system would be required.

There are HR issues present in the current arrangement. Succession planning is not in place as the team does not have the depth of knowledge to fulfill the programmer role. There have also been instances of members being unreachable for extended periods and unreliable in completing tasks they agreed to take on.

From the technology point of view, remaining with the status quo will address only some of the concerns. The interface can get a refresh but the underlying functionality will remain the same. One of the key complaints has been the facility to upload photos for ID cards – the user interface can be modernized, but the limitations as to file type and size will not be addressed without serious effort on the programming side.

In terms of costs, the current hosting platform may be replaced with Microsoft Azure, part of the Microsoft Office 365 package that is provided at minimal cost to the CSP though Microsoft's community donation program. Beyond the cost of the hosting, the certainty of needing funding to maintain the NDS relies considerably on the level of commitment of the volunteer members who support it.

Option 2 – Migrate to ZIMS (Zone Information Management System) (Solution Not Supported)

During the initial discovery of what the CSP needs and wants from a database, it was identified that ZIMS may be an option to replace the NDS. Like the NDS, ZIMS is a custom coded design, with a feature set that supports the CSP specific needs. Members of the IT team were provided with access to ZIMS in order to review and experience the interface. It should be noted however that ZIMS was created for Central Zone, and has been adopted by Western, Frontenac and Muskoka Zones (all in Ontario Division).

ZIMS is a functional system that offers a unique array of features. It is however a system that is driven by members of the CSP, and unconfirmed reports indicate that it too requires an upgrade. Furthermore, the system is not mobile device responsive. Finally, the system was never intended to serve the national scope, therefore it may require additional programming to increase the capacity and cross between the functional areas of the system.

While acknowledging the fact that ZIMS is a functional system, at least at zone level, the customization aspect of ZIMS means that the CSP nationally would be trading one set of issues for another, and would essentially be no further ahead. Issues of maintenance, security and future development would remain a task completed by volunteers, with the risks associated to that unaddressed.

Option 3 – WordPress with plugins (Solution Not Supported)

WordPress (WP) is a content management system for web pages. It is a free and open-source platform that is based on PHP and MySQL, and is easily one of the most popular content management systems in use worldwide. The key benefit of WP is that has a relatively flat learning curve if the user is at all familiar with web page concepts. While it is not the most powerful content management system in use today, it has been deemed by many to be the best fit for the CSP and its volunteer-led core.

Most content management systems rely on plugins, programs that interface with the main system to accomplish a specific task, to offer advanced features. WP is no different, and there are several database management systems that interface with the WP core platform that would meet the needs of the CSP.

WP is not without its security concerns however, and the encryption levels of the database plugins are questionable. The recent disruption of the national website in April 2019 is a prime example, as the IT team believes that the shutdown was due to weakness in one of the plugins.

It terms of costs, the plug-ins have various annual rates, and hosting on a web server in an additional expense (required as the CSP has the "skipatrol.ca" domain). It is believed that less than $500 annually would be required to maintain the subscription to the plugins. Setup would be managed by the volunteer IT team. The hosting of the website may migrate to Microsoft Azure, which would be a reduction in costs, but require complete management by volunteers.

Option 4 – CiviCRM interfaced with WordPress (Preferred Solution)

CiviCRM is a free and open-source contact relationship management (CRM) system built by a community of contributors and supporters, managed by a core team of professionals. CiviCRM is web-based (interfacing with WordPress, among other CMSs) geared specifically for not-for-profit and civic sector organizations. CiviCRM is supported by a network of "trusted experts" to setup the system to meet the organization's needs. CiviCRM is also fully bilingual.

CiviCRM was identified as a platform that can replace the NDS and address most, if not all of the major interfacing concerns. The CiviCRM website reports that combined together, CiviCRM and WordPress are deployed to over 2,900 websites. The integration of both platforms is supported by their respective websites, and a large knowledge base is available (to assist with issues and problem solving).

In addition to membership records management, CiviCRM also provides the following interfaces, natively:

- Donation management with full export in current accounting software formats (all donations to the CSP can come through one point, rather than the mix of solutions being used now).
- Event management, such as registration and communication (national conference specifically, and division or zone level conferences as a future but included option).
- Email management (direct integration with MailChimp or other third-party solution)
- Advocacy campaigns and peer-to-peer fundraising.
- Reports (fully customizable based on need and role).

The CSP contacted two firms that provide setup support and implementation of the core package, along with customization of the features and hosting of the actual platform:

Coop SymbioTIC, Montreal, QC – Coop SymbioTIC was consulted for a quote; they responded quickly and arranged for a teleconference to meet with CSP representatives. Coop SymbioTIC provided a quote that offers both installation and hosting, with a discounted hourly rate for non-profits organizations.

Website – http://www.symbiotic.coop

JMA Consulting, Toronto, ON – JMA was consulted for a quote however declined as they requested complete access to the current system (a security concern). After several weeks of emails, they elected to pass on the quote request.

Website – http://www.jmaconsulting.biz

Note: In the interests of full disclosure, the IT team has become aware of a third vendor, PeaceWorks Technology Solutions of Waterloo, ON. The team has elected not to contact them for a quote as they appear by all accounts to be new to the marketplace with no identified client base or portfolio of past work available. Furthermore, there are some US-based firms that offer bilingual support for CiviCRM, however they were excluded due to the instability in the US to Canadian dollar.

While arguably it would be beneficial to have two quotes, the initial interaction with the team at Coop SymbioTIC was extremely positive and the consensus is that they are the best fit for the CSP. A majority

of the team is French-speaking as a first language, and the entire team is based in Canada (unlike JMA Consulting which uses programmers based in Southeast Asia). Coop SymbioTIC has a large list of past and current clients available on their website, which includes a number of public and not-for-profit sector organizations in Québec and across Canada.

Costs

Coop SymbioTIC provided an initial quote at $28,975 (plus applicable taxes) based on 305 hours of work (at $95/hour).

Plan

Pending approval, the roll-over from the current NDS to CiviCRM is based on the following work plan:

- Getting started, discovery, general setup of minor features (ex : phone book, email, awards) – 25 hours
- Donation form setup with charitable tax receipts – 15 hours
- Membership form setup, renewal process – 35 hours
- Self-serve portal setup, user dashboard – 25 hours
- Access restrictions by regions (ACLs) or type of data – 25 hours
- Data migration from the current NDS – 65 hours
- Accounting integration/reports – 20 hours
- Custom reports – 20 hours
- Training (zoom, in person in Montreal, or docs) – 20 hours

Post-launch technical support (20 hours) and a contingency plan of 20 hours is also included in the plan and the supporting quote.

The estimated time line would be three (3) months from signing the contract. The work would be completed in a test environment and once testing it complete it would be rolled over to the live environment and the current system would be switched to read-only to ensure new data is not entered into the current system. After an acceptable period of time, the NDS as it stands now will be decommissioned.

Benefits

CiviCRM is a modern system that is equally friendly on a mobile device as it is on a desktop computer. The open-source code is constantly being developed into a more powerful platform. Consolidation of the CSP's multiple platforms would provide an annual cost savings, which would help to mitigate the cost of having a third-party be responsible for hosting, maintenance, security and backups. Our database would require a scrub to ensure it is normalized, and the opportunity to rewrite (or in some case, write from scratch) a set of business rules for information management.

Note: The quote and scope of work received from Coop SymbioTIC is attached as Appendix A.

Identified Risks

The IT team has identified a number of risks associated to this project, based on the options above:

- Change to CiviCRM may result in push back from divisions or zones who use their own software. In particular, two zones in Ontario Division have identified an unwillingness to support the project at the present time without more information.
- Undocumented custom-coded software with limited individuals who understand how it is designed.
- Continued dependency on volunteers to keep the security patches up to date, ensure backups are current, and addressing future upgrades.
- Risking volunteer burnout. The IT team is struggling right now to work as a cohesive and responsive unit, primarily due to external and family commitments on the part of the volunteer members.

Formation of a Project Steering Committee

Due to varying nature of the CSP, and to ensure complete and total engagement from the users at the division and zone level, this project would be managed by a steering committee made up the following:
- Vice-President of Brand and Partners (co-chair)
- National IT Manager (co-chair)
- National Office Manager
- A member of the Board of Directors
- A member of the Financial Oversight Committee
- A division president
- A zone president or delegate who uses ZIMS
- A Francophone zone president or delegate
- A zone president or delegate from a small zone (less than 50 members)
- A member-at-large from any area of the CSP

Other leaders and technical support could be engaged as necessary, including the VP of Training and Development, the VP of Business Administration, the VP of Patrol Operations and other division and zone presidents as required. The Steering Committee would be responsible for creating a set of terms of reference, and would meet virtually using Microsoft Office Teams. It is anticipated that once the project is completed, the steering committee could remain in place for future direction and engagement of the national database to the members.

Overall Project Costs

Outsourcing contract	$33,000 - engaging Coop SymbioTIC (including Québec HST less rebate of GST).
Training	$20,000 - 15 people from across the CSP (at minimum one representative per division), with travel and accommodations in Montreal, QC over a weekend. Note that external trainers is covered by the initial contract.
Hosting	$2,000 – initial project year of hosting the new platform by Coop SymbioTIC. Subsequent years would be addressed through the national budget based on a reallocation of a budget line for this cost.

Contingency		$10,000 – above the contingency already identified in the quote, offering an additional 105 hours of work should unforeseen issues come up.
	Total	**$65,000**

Recommendation – Option 4 using CiviCRM with WordPress integration

The Canadian Ski Patrol engage the services of Coop SymbioTIC to install, customize and migrate the records of the National Database System into a database platform built around CiviCRM and the national website. In addition, the hosting of the new database platform would be managed by Coop SymbioTIC for one year under project funding.

Conclusion

Moving to CiviCRM would be the next step to addressing the concerns raised by various members across the organization. By outsourcing the maintenance and security of the database and website, the CSP would eliminate the need for critical infrastructure and records to be managed by volunteers.

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