

A PROJECT DILEMMA AT CANADIAN SHIELD INSURANCE

Derek Stacey, David Hemsworth, Glenn Brophay and Cristobal Sanchez-Rodriguez wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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Version: 2012-12-10

Seamus's hands trembled slightly as he unfolded the paper. A wave of anxiety washed over him as he read the letter of congratulations he had just received from the vice-president.

Dear Seamus,

I just wanted to take a moment to congratulate you on having your ISS system move from the development stage to the trial stage. I know that the project took a few years longer than estimated, but the extra functionality and attention to detail, I am sure, will prove to be worth it. Darian (director of information systems at Assurance Centrale Inc.) showed me the needs assessment documentation that you painstakingly worked to produce and he assures me that every feature you requested has been programmed into the ISS. I wish you well in the final trial / pre-implementation testing phase.

Thank you very much for your commitment to this project,

Hart Bezner
VP of Operations

Seamus looked away from the letter, dropping it to the surface of his desktop. He rubbed his brow with his index finger. Shaking his head slightly, he let out a deep sigh and mumbled to himself, "This is going to be tough. What am I going to do?"

BACKGROUND

Over the past five years, Seamus Reynolds had progressively become disheartened with his job. He managed the information systems (IS) department for the Canadian Shield Insurance Company in Edmonton, Alberta — a medium-sized insurance company operating as a division of Assurance Centrale Inc., a Canada-wide insurance company based in Vancouver, British Columbia. Although ultimately

responsible for the information system at Canadian Shield Insurance, Seamus had become burdened with the task of overseeing a critical pilot project that could potentially replace the information system in each of Assurance Centrale's regional offices. This responsibility originated five years ago, when he confidently announced to his fellow employees at Canadian Shield Insurance (CSI) that the time was right for the implementation of a new IS. Seamus's responsibilities were to pilot test the information system and determine its viability for widespread implementation in Canadian Shield Insurance. A successful implementation in Edmonton meant that the parent company, Assurance Centrale, would adopt the new system in all of its offices. Unfortunately, the events of the past five years had been far from what Seamus expected, and he had been forced to deal with a series of complications and disappointments. Seamus was overwhelmed by the pressure of his situation and the decision he needed to make.

Seamus's decision to replace the current information system — the ALPHA system — was originally spurred by the growing information needs of Canadian Shield Insurance. Frequent modifications and maintenance had been necessary to keep up with changing government regulations in the industry. Unfortunately, the ALPHA system was not initially designed to be continuously adapted to changing information requirements, and as a result, it was awkward to use, crashed occasionally and was difficult for new employees to learn.

When searching for an alternative system to implement five years ago, Seamus was disappointed that no appropriate off-the-shelf system was available which would accommodate the incessant changes in provincial insurance underwriting regulations. Each existing system was designed by an American company, and was thus tailored to the rules and regulations of the insurance industry in various U.S. states. In addition, all vendors indicated that they were not willing to undertake the considerable modifications required for operating in the Canadian environment. Thus, Assurance Centrale decided to develop a new information system internally, to be first implemented and tested at Canadian Shield Insurance in Edmonton and, if successful, put into operation in all of Assurance Centrale's regional branches. A new system offered the potential to increase greatly the competitiveness of the company by having a manageable database that could be easily adapted to new regulations as well as being more efficient and easier to use, and requiring fewer personnel to maintain and operate. This would leave additional time for employees to focus on promoting the company and forming stronger relationships with customers.

Now, almost five years after Seamus first initiated the project, he and his staff at the Canadian Shield Edmonton office were in the process of testing their newly developed system named the Insurance Software Solution (ISS). Since the project had increased in scope substantially, the current investment had exceeded five times the original budget estimate. In addition to the exorbitant amount of time and money already channeled toward the new system, Canadian Shield Insurance was inundated with project concerns. After initial training sessions, the Edmonton staff was frustrated by the complexity of the new software they had developed. For example, adding another vehicle to a policy — a relatively simple policy change — now required underwriters to work through a minimum of nine different screens and menus compared to just two or three with the ALPHA system. To make matters worse, the pilot version of the ISS was consistently generating errors that required the attention of the programmers in Vancouver. Lastly, the ISS was proving inflexible in adapting to the varied provincial regulations. Seamus was now unsure if he had allowed sufficient time for a successful training program and for the full ISS implementation.

Seamus wondered where things had gone wrong. Less than a year ago, the adoption of a new system was met with enthusiasm, had the full support of all his insurance underwriters and was promising to improve the Canadian Shield's operations thoroughly. Now he was beginning to question whether the ISS was a functional alternative for Canadian Shield. Seamus's predicament was further complicated by his discovery of a new, commercially available information system called the Advance Insurance System

(AIS) from Garvin-Allen Solutions, which according to the research he had done appeared to have more than all the necessary features, flexibility, and support to satisfy the company's information requirements in the Canadian regulatory environment. Seamus confirmed with the AIS sales personnel that the system had been thoroughly tested and received regular updates for improved functionality; the latter was a process that did not take place with CSI's current ALPHA system. Alternatively, Seamus frequently contemplated whether it would be better for the company to abandon the promised benefits of any new system and stick with the familiarity and simplicity of the archaic and outdated yet functioning ALPHA system, leaving Assurance Centrale to decide what direction it would take with respect to its other offices.

THE INSURANCE INDUSTRY

The insurance industry represented one of the major pillars of the financial intermediation market by providing financial protection for various economic agents. This industry was heavily regulated in Canada at both the federal and provincial levels. Regulations were designed to limit how insurance coverage could be sold and by whom. Regulations differed significantly by province, guiding what rates and premiums could be charged. Such heavy regulation put a premium on both operational efficiency and the ability to be flexible in adapting to different geographical regions. Insurance companies in Canada were continuously modifying their operating procedures and information systems to keep up with frequent regulation reforms and new government requirements. For example, government regulations prohibited the interaction of insurance companies with their insured, forcing Canadian Shield's underwriters to deal with the company's insured through insurance brokers (legally required intermediaries). Therefore, insurance brokers were Canadian Shield's actual customers, who in turn sold insurance to individuals and businesses. As a consequence, a strong relationship between an insurance company and its brokers was necessary for the brokers to successfully deliver insurance products.

In recent years, claims paid had been greater than premiums received. Only the revenue earned on the pooled assets had provided insurers with a net profit. Due to recent underwriting losses in the Canadian insurance industry, insurers had found themselves needing to attach more importance to interest returns and the ability to minimize operating costs and deliver services efficiently. It had proved difficult to achieve these goals while at the same time improving the level of customer service. Thus, sustainability for Canadian insurance companies greatly depended on investments in projects that increased customer service and improved operational efficiency.

COMPANY BACKGROUND

Assurance Centrale Inc.

Assurance Centrale Inc. was a Vancouver-based, Canada-wide insurance company offering three lines of insurance products: automobile, personal property (residential), and commercial property insurance. With more than two million Canadian clients, Assurance Centrale earned a total income of \$87 million last year from insurance premiums, investments and fees. The company provided its products through five subsidiaries which each arranged to serve a specific geographical region. Services were provided in western and central Canada through offices in Vancouver, while Alberta was currently serviced by two separate subsidiaries, with offices in Edmonton (Canadian Shield) and Calgary. The office in Vancouver accommodated corporate management and serviced surrounding areas. Eastern Canada had reduced coverage, represented by a single office in Halifax, Nova Scotia. There were 250 employees working in all divisions of Assurance Centrale Inc., approximately half of whom were insurance underwriters working

directly with a network of more than 580 independent insurance brokers across Canada. The company had achieved high growth rates over the years by acquiring small regional insurance companies, and this provided Assurance Centrale Inc. with a larger customer base and greater geographical scope. Unfortunately, this had also resulted in many different information systems being used throughout the company. Management was aware that great efficiencies could be gained by integrating systems, company policies, and procedures.

Canadian Shield Insurance Company

Almost 10 years ago, Assurance Centrale acquired Canadian Shield Insurance Company, located in Edmonton, Alberta. This provided Assurance Centrale with more than 20 years of experience and 600,000 clients in Alberta. Canadian Shield was originally established to provide insurance for fishing and hunting lodges in Alberta, but had expanded to offer automobile, property, and commercial insurance. The company underwrote more than \$55 million in premiums annually, and employed more than 60 individuals. Seamus was the manager of the IS department, and coordinated the department's activities.

Canadian Shield and its employees operated under the following philosophy:

The Company will provide service to our customers which will exceed normally accepted industry standards and which will create a sustainable competitive advantage. Emphasis will be placed on identifying, fostering, and implementing best practices. Adherence to this philosophy will provide our stakeholders with investment appreciation through continued expansion and profitability.

Even though information technology was not specifically mentioned in the company's philosophy, it was used by every Canadian Shield employee on a daily basis as a means to achieve company objectives. Seamus firmly believed that achieving a sustainable competitive advantage relied on the correct approach to information systems. Until the time of the case, most of the IS personnel's time had been spent simply maintaining the operation and integrity of the current system — the ALPHA system.

THE ALPHA SYSTEM

At the Canadian Shield Insurance office in Edmonton, all insurance policies were currently stored and maintained in the ALPHA database software program with several onsite servers. The ALPHA system was unique to Canadian Shield and was developed in-house more than 15 years ago by Seamus and a team of five programmers for \$50,000. It was initially designed to maintain information pertaining to the insurance policies of Canadian Shield's fishing and hunting lodge clientele, and gradually evolved to include automobile, property and commercial insurance. Seamus had struggled to adapt the ALPHA system to the growing information needs of Canadian Shield. In recent years it had required continuous changes and maintenance to meet the requirements of the evolving industry, repeatedly disrupting the underwriters' daily work. Furthermore, the system had gradually become more awkward to use as attempts were made to adjust it to changing government regulations. For example, when the government specified a minimum level for automobile insurance deductibles, Seamus and his team amended the information system quickly to reflect the new change, even though the software was not originally designed to have constraints on specific variables within each record. A more specific example was when Bill C-8 implemented changes such as stipulating that insurance companies needed to maintain membership with an independent complaints organization (similar to an ombudsman). A patchwork of

programming code was grafted onto the ALPHA program, which one programmer nicknamed “the C-8 octopus mod” (a real ad hoc fix!). When the ALPHA system was first implemented, it was considered leading-edge technology. However, as often befalls internally developed information systems, Canadian Shield failed to undertake significant new software developments (i.e., more than simple changes to address alterations in regulations) and feature updates (e.g., a graphical user interface) to sustain the leading-edge nature of the program.

The ALPHA system was developed as a client-server configuration using a text-based interface driven by menus accessed through function keys. Most underwriters at Canadian Shield Insurance used dumb terminals to connect to and access the server, although some had client programs running on PCs which accessed the server. A text-based interface (as opposed to a graphical interface) was adopted in order to limit the amount of information being communicated, which was important when telephone lines were used for connections. The programming (source) code underlying the system (programmed in COBOL) had been described by Canadian Shield’s programmers as a “labyrinth of patches.” Unfortunately, no comprehensive documentation of the source code existed and they were relying on the expertise of one programmer (who happened to be nearing retirement) for the continuing functioning of the system.

Canadian Shield had been facing problems relating to the demand load of the ALPHA servers. At various times throughout the day, accessing the server had become very slow. It was not uncommon for an underwriter to type something into a policy and not see the text appear on the screen until thirty seconds later. On a daily basis, underwriters experienced system crashes, requiring the system to be restarted and forcing underwriters to ensure that any modifications they made to a policy were saved and that other policies recently accessed and changed were not affected. Another problem occurred when too many people were trying to access the same data. Faster server hardware was available that could help to alleviate this problem, but there were concerns about newer operating system compatibility with the ALPHA system. In addition, the ALPHA system did not provide record locking, so when changes were made by various employees to the same policy simultaneously, the last person to exit and save the policy unknowingly overwrote the other underwriters’ modifications. The worst part about this issue was that nobody became aware that a problem had occurred. Although there had been surprisingly few complaints from the underwriters about the ALPHA system, most employees had been very excited about the idea of adopting a flexible, more current, and more efficient database management system (DBMS).

Although it was possible to extend the life of the system by continuing with regular maintenance and upgrades (not something that seemed to happen), Seamus was convinced that a new system would allow the company to become more competitive in the insurance industry by increasing efficiency and freeing up underwriters from regular policy renewals to focus on generating new business (see Exhibit 1). Since most of Canadian Shield’s business consisted of automobile and residential insurance, it was decided that these insurance lines would be the first to switch over to the new system, while programmers continued to develop modules for commercial insurance lines as well. The impact of Seamus’s pass/fail decision regarding the pilot information system would affect the operations of not only Canadian Shield, but of all Assurance Centrale’s subsidiaries as well.

THE DEVELOPMENT OF THE NEW INFORMATION SYSTEM: INSURANCE SOFTWARE SOLUTION (ISS)

Assurance Centrale used the traditional *systems development process* approach when creating new information systems. Five years ago, Seamus and the IS personnel at Assurance Centrale in Vancouver were both involved in the initial systems analysis stage. This project team scoured the insurance industry

in search of a commercially available software program. They were able to find two off-the-shelf insurance systems, but both were based on the industry regulations in the United States. Adapting a new U.S.-based system to the Canadian insurance industry was not feasible due to the substantial differences between the legally required underwriting procedures in both countries. Thus, the decision to develop a proprietary system was made. A budget of \$250,000 (five times as much as was allocated for the original ALPHA system) was allocated for the new ISS system. Major advances in programming, including the use of objects, better debugging tools and superior database management systems, were thought to compensate for any increases in programmers' wages. It was also determined that the new system would be developed by contract programmers at Assurance Centrale in Vancouver, since Canadian Shield had limited programming staff resources. During the systems design stage, the Assurance Centrale systems analysts and programmers met with Seamus and the underwriting team leaders (insurance underwriters evaluated the risk of applications for insurance policies) from Canadian Shield Insurance to determine the current system usage, the business processes, and the needs for the new information system. The topics discussed over three weeks of interview-type sessions ranged from security features to technical issues (such as database design) and encompassed everyone from end users to current maintenance programmers at Canadian Shield. The underwriters' needs were well defined. The new auto insurance system had to be capable of following every procedure outlined in the company's underwriting manual. The underwriting manual contained detailed procedures on how to underwrite automobile insurance policies according to the regulations governing insurance in each of the provinces, and was seen as the primary guide for the development of the new information system. More importantly, however, the new information system had to be flexible, with the ability to adapt to the changing information requirements that coincided with changes in government regulations. In the older ALPHA system, all the user interface screens and logic were programmed in COBOL directly into the source code, which made updates and changes difficult. Flexibility was the single most essential characteristic that Seamus stressed throughout the process, because lack of flexibility was the most frequent recurring problem with the ALPHA system.

The programmers worked with the Edmonton underwriters to create a series of data flow diagrams (DFDs) detailing the processes by which underwriters would create, maintain, and renew automobile insurance policies. Furthermore, the DFDs outlined the collection and flow of policy data throughout the underwriting procedures. Entity relationship diagrams (ERDs) also provided programmers with a glimpse of how the policy information was created, stored and used by the underwriting department. Seamus remembered being impressed by the programmers' thorough and professional approach to the development of a new system. This in-depth analysis produced a detailed blueprint, project plan and timeline for the new system. It was finally approved by Seamus and the information system group leading the project at Assurance Centrale. Rather than using the traditional sequential programming methods utilized with the ALPHA system, the new ISS utilized C# (pronounced C-sharp) and .net (pronounced dot-net) object-oriented programming. This method divided the program into objects that were self-contained modules of code. For example, each of the user interface screens was an object. The benefit of this was that changes could be made to the individual objects (screens) without affecting any other portions of the program. It also allowed seamless integration with the Internet and database management systems.

The Insurance Software Solution (ISS) had the potential to offer underwriters an overwhelming number of benefits. The most anticipated luxury was the software's user-friendly interface. The text-based arbitrary key sequences would be a thing of the past, replaced by an up-to-date Windows-based interface. These benefits had been communicated to the employees of the Edmonton office and they were very excited about converting from the old ALPHA system to the new ISS. Moreover, Seamus was very content with the new ISS's high capacity for detailed information. This satisfied the information requirements and assisted in the management of customer (broker) relationships in several ways. First, the new ISS was focused on customer relationship management (CRM) and therefore offered underwriters a section in

which to enter notes into a policy, and each note was dated automatically and could only be modified by the underwriter who created it. This allowed more information to be documented than was previously possible with the ALPHA system and provided an easy method of communication between underwriters, as in automating such CRM functions as customer follow-up. The ISS also included a feature called the “DV image.” The DV image of a policy provided an audit function that logged activities at specific points in time when changes were made to the policy. This means that the company not only had up-to-date information about how the policy currently existed, but also knew how the policy was at specific dates in the past when changes were made. These features would benefit Canadian Shield with a revision audit trail, and also with more practical advantages such as reducing the amount of documentation required, thus freeing up office space and personnel previously devoted to storing and retrieving files.

The changes to Canadian Shield’s standard underwriting procedures would result in significant adjustments to the company’s human resource requirements. Currently, using the ALPHA system, much of the underwriters’ time was spent rating policies, performing policy renewals, generating new business, and executing policy changes. This substantially reduced the available time to interact with brokers. Thus, the new system incorporated numerous new benefits to address these issues. One such benefit was that the ISS was programmed to automatically rate insurance policies. Only exceptional policies identified by the ISS needed to be examined by an underwriter. It was estimated that the ISS would rate 64 per cent of the policies automatically, while the other 36 per cent represented exceptional files that required underwriter attention. For example, if the ISS encountered a policy for an automobile that was more than 15 years old, the software would flag the policy and indicate that a photograph or safety certificate of the vehicle was required. Thus, when the ISS became fully implemented, fewer underwriters would be required, allowing Canadian Shield’s current underwriters to spend more time marketing their products to insurance brokers. This would generate more clients and keep existing clients satisfied, with an increased level of personal interaction. In addition, the ISS was designed using a relational database and middleware that would facilitate the integration of the automobile and residential insurance modules with the life insurance and commercial insurance systems (which were currently separate flat file databases in the ALPHA system). This phased development of ISS would commence after the successful implementation of the automotive and residential systems.

Potentially of greatest importance to Seamus’s IS team was the continued need for the services the new ISS would provide. Since Seamus’s IS team spearheaded the documenting of existing needs and business practices which formed the backbone of the new ISS system, they became the natural choice for pilot testing and, more importantly, future training and implementation at other subsidiaries. Their role would now extend from supporting the ALPHA system at Canadian Shield to becoming part of the support system for the ISS. This was seen as a significant promotion, and had generated real excitement in the IS staff.

THE UNVEILING OF AND INITIAL TRAINING FOR THE INSURANCE SOFTWARE SOLUTION

This past summer, five long years and well more than one million dollars after Assurance Centrale made the original decision to internally develop its new automobile and residential insurance system, Seamus, his IS team, and six of the Edmonton underwriters spent two weeks in Vancouver to receive their introduction and training on the ISS. In addition to demonstrating the abilities of the new system, this two-week “train-the-trainers” session was designed to instruct key Edmonton employees so that they could provide the foundation for educating other Canadian Shield employees. Until fully tested and implemented, the system would operate in parallel with the ALPHA system in Edmonton.

The session began with an overview of the program requirements and database structure. At this point, it became clear to Seamus why the ISS had become such a large and sophisticated system. He remembered emphasizing to the programmers that the new IS had to be capable of accommodating a variety of information requirements in order to satisfy the government regulations on the insurance industry, and from the database overview it looked like this had been accomplished. The programmers' method of addressing this criterion was to develop the screens of the ISS such that they could accommodate potential information requirements and rule changes, and endow the system with the flexibility to handle all foreseeable regulation changes. As mentioned earlier, this was achieved by utilizing an object-oriented modular approach, which allowed individual units of the code to be modified without affecting other modules and the entire program's structure.

After seeing the first few screens, everyone was pleased with the comprehensiveness of the software and felt that it made sense. After 100 screens, the underwriters were frustrated and overwhelmed by how sophisticated and detailed the software had become. Many components of the new system existed for the benefit of insurance actuaries and created complications and inconveniences for the underwriters. After a week of going through the screens and functionality of the system, it became quite evident that the programmers gave Seamus exactly what he had asked for. However, one of the underwriters summarized the usability and functionality of the new system in a single phrase — "This program sucks!" In an attempt to build in flexibility that could address every foreseeable contingency, the new information system became virtually unusable from a practical standpoint.

In contrast to the ISS, the ALPHA system had been logistically organized. For example, in the ALPHA system the underwriter would only have to view three screens to add a new vehicle to a policy, whereas in the ISS the underwriter would have to page through at least seventeen screens. Each of the ISS screen inputs had been grouped according to function, with all the functions pertaining to a specific information issue contained on one screen. For example, the ISS had a set of screens for each insured's personal and contact information (driver's primary and alternate address, owner's primary and alternate address, if applicable), another screen for vehicle-related information, a screen strictly for policy surcharges, and so on. Most of the screens were filled with blanks or zeros, each necessary to accommodate all the possible options that might be relevant in future regulation changes. Canadian Shield's underwriters were familiar with the screens of the ALPHA system, where each screen contained only the information that was required to complete a specific automobile or residential policy (although many policies required additional information in a memo field). The underwriting team leaders were confused by the jumbled ordering of the ISS screens, which sometimes required them to skip through a series of pages to be able to insert information relevant to a particular issue or policy.

Seamus briefly consulted with the head programmer about streamlining the program screens. Since each screen is an individual object (also referred to as a module) which contains all the associated programming code and functionality, the reorganizing of the components of the screens to increase usability requires a restructuring of each of the effected objects/modules which is an overwhelming amount of work. To optimize the screens logistically, the organizational structure of the current modules would have to be abandoned, and rather than each module containing a set of related features, each would have to be redefined based on usability. All of the modules would have to be re-programmed, troubleshot and tested — an enormous undertaking. In addition, it would take extensive planning to utilize a modular structure so it could be applied to a logistically efficient interface. Since the Edmonton IS department was accustomed to COBOL (the language used for the ALPHA system but not the ISS), Seamus realized that any change to an ISS screen would have to be executed by the IS C# programmers in Vancouver. Based on his past experience with Assurance Centrale's IS department, Seamus was convinced that a request to recode and streamline the current user interface would take a year by itself, and likely a year and a half if the ISS was

implemented at the same time that the programmers had to look after changes/maintenance/bug fixes to the ISS and the screen development. This was assuming the programmers could get upper management's support to spend more on this project when they had already exceeded the original budget many times over. This could be implemented as an update but it would require additional training of the users, since they would have been using the original ISS user interface for a number of months.

THE EDMONTON ISS PILOT PROJECT TESTING

Fall arrived to find that Seamus and the Canadian Shield staff had endured several months of experience working with the ISS as a pilot project. They continued to use the ALPHA system for regular business operations while testing the ISS by generating new policies and fixing bugs in the program. This testing had revealed that Canadian Shield faced several obstacles relating to the ISS pilot project. Throughout the summer session, the Edmonton underwriters uncovered a substantial amount of errors, with more than one hundred fault reports issued during the two-week session. In addition, employees felt that the training for the new system was inadequate. Since the participants of the Vancouver sessions were expected to train other employees in the Edmonton office on the system, this presented a significant problem for Canadian Shield.

Even though the bulk of the development process was complete, there were still costs to be incurred with the ISS pilot project if it was deemed successful and if go-ahead for implementation was given. This included the cost of fixing errors, the conversion of the policies from the ALPHA system, and the substantial training costs. Starting next year, Seamus anticipated spending for the Edmonton office to be between \$70,000 and \$100,000 per year on implementation and conversion until the process was completed after three years (see Exhibit 2).

ADVANCE INSURANCE SYSTEM

Although no suitable off-the-shelf alternative had been available for Canadian Shield to purchase five years ago, this was no longer the case today. Several weeks before his summer training trip to Vancouver, Seamus browsed through an industry publication and discovered an advertisement for an insurance information system. Seamus found it ironic that after spending five years and well more than one million dollars developing a proprietary information system, an off-the-shelf program — the Advanced Insurance System (AIS) — appeared to satisfy all of his requirements. Subsequently, he spent several days reading trade journals and news groups, and even contacting current users of the AIS. A preliminary confirmation of its suitability was obtained from the AIS salespeople based on a review of the summary of the ISS system analysis documentation.

The AIS was widely used by underwriters in the U.S. insurance industry and had a reputation for being very user-friendly with an easy-to-navigate graphical interface. The system was developed by Garvin-Allen Solutions Limited for various types of insurance including farm, automobile, home, and specialty lines. Since Garvin-Allen Solutions Limited developed its product to suit the needs of numerous insurance companies, it was designed to accommodate the capacity of information required by even the largest insurance firms. It not only allowed insurance companies to issue and maintain policies, but also had the ability to integrate many aspects of an insurance company into the information system, including quoting, billing, and claim administration (a separate system was currently being used by the claims department at Canadian Shield).

Seamus was particularly interested in the AIS billing system, which allowed the insured to define which payment plan they would like to use. The insured could pay through direct billing or pre-authorized chequing; this flexibility should increase customer satisfaction. Enhancing Canadian Shield's payment options would benefit customers by increasing their range of choices and offering improved service. The billing system also managed payment distribution, prepaid premiums, outstanding credit, overdue payments, cancellation lists and age of receivables. In each U.S. state there existed different sets of regulations governing the various facets of the insurance industry. Due to the differences in state government regulation, Garvin-Allen Solutions consulted with its clients to ensure that each system was customized to the needs of that particular company and was designed to allow each insurance office to independently customize the system if required. Thus, for the AIS to penetrate all geographical segments it had to be extremely customizable and easily adaptable. Seamus's discussions with the AIS's salespeople indicated that they were very enthusiastic about penetrating the Canadian market and that their AIS program should be able to be adapted to meet the requirements of the Canadian insurance industry. However, the definitive ability of the program to be adapted would not be known until a formal needs assessment document was completed.

The AIS was configurable by manipulating a configuration matrix that represented the business process rules. This matrix was presented in the form of a set of cells (similar to a spreadsheet), where each of the screens could be customized and tailored to specific needs. For example, if Canadian Shield required an additional surcharge on automobile policies where drivers possessed cell phones, Seamus could open the matrix as a spreadsheet, add a row to the policy entitled "cell phone surcharge" and enter "1.02" as a surcharge in the appropriate column corresponding to the correct IS screen to add a two per cent increase in the cost of the policy. Changes could be made in minutes to the AIS rather than the months that might be required if an ISS module needed to be reprogrammed, tested, and deployed. Moreover, mass updating was an additional attractive feature of the AIS — if Assurance Centrale wished to make a specific change for all its regional offices, it would only require the appropriate modification to the configuration matrix and then have to simply upload it to the individual offices, dramatically reducing upgrading costs and interruptions. This greatly reduced the complexity of the screen compared to in the ISS, because the screen could be designed to be logistically efficient as well as simplified rather than having a large number of unused fields displayed on it to accommodate any future needs/changes in regulations (as was the case with the ISS). Instead, these unused fields (which still existed in the AIS) could be displayed at any time by editing the AIS configuration.

To purchase the basic AIS in one office, such as Canadian Shield's Edmonton office, the total cost would not exceed \$75,000 plus the cost of hardware. Seamus's interest had been drawn to Garvin-Allen's contract deals that allowed insurance companies to purchase the use of the AIS for a period of time. The subscription contracts varied in price depending on their length and the degree of customer support. By purchasing a three-year contract for \$425,000, Garvin-Allen Solutions would provide training, full-service support, and assistance during implementation and project management (see Exhibit 2). The AIS would also provide client access to walkthrough tutorials, FAQs, and related glossaries to assist underwriters. To support the conversion of policies to the AIS, Garvin-Allen Solutions would assist with the design and performance of the conversion process and the integration of any new applications. The subscription would also include all feature updates released for the program. Seamus knew that the ALPHA system never received any feature updates and that the only changes made were those required to meet the minimum standards mandated for the insurance industry. If the ISS system followed in the ALPHA's upgrade path (which he thought was likely), it would slowly also become out of date, although he knew that upgrading to new versions and relying on external software providers presented its own problems.

The most worrying concern for Seamus was what would happen to his IS team. He expected that if the AIS were adopted, it would become a company-wide information system and that all its support would originate from the head office's information systems department (same or maybe larger number of people) and that his team would not be involved. This had been the case with previous enterprise-wide software implementations. The demand for older-aged computer professionals in Edmonton was virtually non-existent and his IS team personnel were well rooted in the community and most would not be able to move to find similar employment. Unemployment in Edmonton was very high.

LAST THOUGHTS

Although the features of the AIS were very exciting to Seamus, he was uneasy and knew how the users of the system would respond to the idea that they might have to postpone implementation of a new IS and learn a new, different system after having expected to switch to the ISS for several years now. After all of the anticipation for the ISS, as well as a two-week training session and the extensive testing thus far of the system, Seamus was certain that they would be aggravated to find out that Canadian Shield was considering abandoning the project. The company would be thrown into turmoil. Even if he assured employees that the transition to the AIS would be much smoother than continuing with the implementation of the ISS, he doubted that the staff would have any more faith in his promises. How would his IS staff react if he made the choice to investigate the AIS, since it would potentially jeopardize their livelihood?

He wondered how the head office would react, but expected it would be a real CLIM (career-limiting move); throwing away more than a million dollars and five years of work would not be taken lightly, even if the AIS was the superior system for the company. Additionally, he knew that the computing department of Assurance Centrale would be horrified and would resist strongly any suggestion of considering the AIS and that his rapport with them would be irreparably damaged. Finally, he estimated it would take the better part of a year to reformulate the business requirement and needs assessment documentation for an RFP (request for proposal), and was aware that the search for a new information system would likely be widespread and not limited to just the AIS. He also knew that one year could turn into several by the time Canadian Shield would get to the point it was at with the ISS. This delay, loss of momentum, and change in focus alone could mean the death of the ISS system even if it proved to be equally as capable as the AIS and other systems. He wondered if it would be easier to just adopt the challenging-to-use ISS system and forget he had ever considered the AIS. What if he passed the ISS through the trial and it was rejected by the other Assurance subsidiaries when they attempted to adopt it? When was the point of no return for a project of this magnitude? Seamus wondered, "Is this a case of chasing rainbows and the 'grass is greener,' or are there legitimate reasons why I should recommend that the company halt the implementation of the ISS and have head office take a year or more to explore the viability of the AIS or other off-the-shelf systems?"

Seamus Reynolds felt drained by his company's IS issue as he struggled to come up with a scorecard of the potential decision-making criteria (see Exhibit 3). It was time for him to make a formal decision about what to do about the future of Canadian Shield's information system. Once he had decided which way to go, he needed to know how he might get the buy-in of the other parties involved with the system.

Exhibit 1

STAFFING COMPARISONS FOR THE DIFFERENT INFORMATION SYSTEMS

Ongoing Annual Human Resource Requirements			
Department	ALPHA	ISS	AIS (lease)
Underwriting	11	6	5
Accounting / Accounts Receivable	4	4	2
IS Support - Canadian Shield	5	5	2
Programming - Assurance Centrale Inc.	0	4	4
File Room	3	1	1
Total Personnel	23	20	13
Total Annual Costs (assuming average \$60k for underwriters/programmers./accountants., \$40k for file room)	\$1,320,000	\$1,240,000	\$640,000

Source: Created by authors.

Exhibit 2

**INFORMATION SYSTEM COSTS AND CANADIAN SHIELD HUMAN RESOURCE REQUIREMENTS
FOR EACH OPTION**

	ALPHA	ISS	AIS
Development Cost / Purchase Price	\$50,000 (15 years ago)	Over \$1,000,000 (so far)	\$425,000
Implementation and Conversion Costs	Not known Needed to be estimated	Over three years: \$100,000 \$100,00 \$70,000	Over 3 years. Included in purchase price
Annual Maintenance and Upgrade Costs	\$8,000 to \$24,000	\$6,000 to \$11,000	Included in purchase price
Training Costs	Not known Needed to be estimated	\$125,000 (including salaries and opportunity costs of employee training time)	Opportunity costs of employee training time
Lifespan	Short	Long	Three-year contract, renewable
Severance Costs	\$0 - Assurance programmers are contract employees	Five underwriters avg. 60k each - \$300k Two file clerks - total \$50k Total \$350k	Eleven underwriters / accts. / prgrms. avg. \$60k - each \$660k Two file clerks - total \$50k Total \$710k
Risk / Probability of Success	Short-term: 70 to 80% Long-term: 30 to 40%	Implementation: 55 to 75% Long-term: 50 to 70%	Implementation: 65 to 80% Long-term: 65 to 75%

Note: For financial calculations, a 10 per cent cost of capital is typically used by CSI.

Source: Created by authors.

Exhibit 3

SCORECARD OF THE POTENTIAL DECISION-MAKING CRITERIA

<i>1 being poor, 10 being excellent</i>	Import- ance to Company	ALPHA	Score	ISS	Score	AIS	Score	**Other Altern- ative	Score
NPV	?*	?		?		?			
User Friendly	7	4		5		7			
Continuation of Momentum/Need for Timely Implementation	?								
Policy Information Capacity	4	3		8		9			
Compatibility with Government Regulations	10	7		10		8			
Policy Rating Efficiency	7	3		9		9			
HR Requirements	6	4		6		7			
Employee Resistance	8	9		3		2			
Impact on Seamus's IS team	?*								
Maintenance/Upgrad e Requirements	5	7		2		5			
Training Requirements	4	10		1		1			
Potential Ability to Link with Other Systems	5	3		7		8			
Billing System	2	3		3		10			
?* (add any additional criteria)	?*								
Total									

Notes:

* A few "?"s have been left intentionally for the reader to decide if they should be included and, if so, the appropriate weighting.

** Space for another alternative has been provided so that additional alternatives may be compared if desired.

Source: Created by authors.