



Following are three documents that comprise the reports made to the SSA Board of Directors concerning the SSA computer information systems. The first memo is an introductory note written by SSA Chairman Tim Welles. The second document is the “white paper”, authored by SSA President Larry Sanderson and Region 9 Director Chip Garner, describing the activities and decisions associated with development of the new systems. The third paper is an individual report from Chip Garner made to the Chairman reporting on his independent findings during a trip to the SSA offices.

Document 1

To: SSA Board of Directors

From: Tim Welles, Chairman-SSA

Date: April 5, 2002

Subject: White Paper-SSA Information Technology System

The “White Paper” on the SSA Information Technology System has been completed and is attached to this message, along with a memo from Chip Garner, SSA Region 9 Director.

The purpose of this information, as discussed previously, is to provide you as SSA Directors with complete information on the SSA IT project to answer questions and concerns on the topic from your constituents. Within the next day, we plan to post this information on the SSA website.

I have personally reviewed this information and have drawn the following conclusions:

- The SSA IT System, as implemented, meets the requirements of SSA operations. It is a powerful tool that is doing what we need and will meet future needs.
- Other alternatives all have their cost/value trade-offs. While an off-the-shelf approach might have been used, there is no guarantee that total cost would have been less, operational costs would be higher, functionality now and for the future would be less, and reliability would be lower.
- The final cost of the project, while significantly higher than the initial quote, was not out of line for a system of this level of functionality.
- Project management and execution was an area where, in hindsight, we could have done better. The difficulties with our supplier, DMG, were a major problem, but in the end were resolved satisfactorily. The SSA Staff supported the project effectively. The SSA Board and/or the Executive Committee approved the project and major scope changes. Communications on project status to the Board were done, but should have been more timely.
- Maintenance costs are not out of line for this level of system, and have the potential of being reduced in the future.
- We should not overlook the total picture here. The SSA website software and hardware was obtained and implemented for a small fraction of its very high value to the Society.

I want to thank Chip Garner for donating his time and expertise to this analysis. Chip's experience in the computer and programming industry was very helpful.

You will note that Mike Culver is quoted in Chip's memo. For those of you who may not know, Mike is the individual responsible for developing (programming) the technical aspects of our website and obtaining the donation of the required software. Mike is currently a Microsoft employee and continues to be the technical support behind the SSA website.

In summary, I believe we now have a functional IT system that meets our current and future needs, and that the project cost is not out of line for this scale of system. It is time to accept what we have and move on to the many other critical challenges facing the SSA.

Document 2

TO: SSA Board of Directors

FROM: Larry Sanderson, President
Chip Garner, SSA Region 9 Director

DATE: April 2, 2002

RE: Discussion of SSA's Information Technology Conversion: 1997-2001

The purpose of this memo is to respond to requests from the Board for a broad overview of the events and decisions related to implementation of SSA's new information technology. Because the most significant cost issues relate to the software the memo will focus on those specific issues. However, to gain a full picture of SSA's IT development it is also important to review the costs and value associated with SSA's Internet program. This information is included as an addendum to the basic memorandum.

The Digital Era (1988 through 1999)

The SSA operated a Digital Mini-Vax system for approximately 10 years prior to the decision to move to DMG. The Mini-Vax used proprietary software from a company called Smith-Abbott. The software integrated all functions such as accounting, merchandise management (inventory and shipping), membership data, membership billing and transaction histories.

The Smith-Abbott software, as well as the Mini-Vax, were not Y2K compliant. SSA did not have the option of simply upgrading the software to resolve the Y2K problem. Further, Digital had ceased support for the Mini-Vax series and there was no ability to increase capacity or remedy the Y2K non-compliance issues..

Search for a New System (beginning in 1997)

The goal was to acquire a software system that continued the integration of all functions. This integration allows for operation at reduced staff levels and with a minimum amount of paper shuffling, repetitive entry of data, etc. It was generally agreed that the best hardware configuration would be a network of PC's built around a central server. However, the office functions with at least two or three Macintosh computers to support the magazine production. Any system chosen would need to be able to integrate the Mac's into the network along with the PC's.

SSA acquired a list of software vendors from the American Society of Association Executives. The vendors on this list (some 30+) all specialized in software for non-profit organizations. However, relatively few of the vendors had modular software that could also include management of a merchandise function as well as specialized needs such as detailed trust accounting, calculation of unearned dues revenue, multi-platform service, substantial "scalability" to allow for growth into new operational areas, etc.

In August 1997 SSA asked for, and received, support from New Mexico Junior College (NMJC). Bill Kunko, NMJC Computer Center Director, met with SSA staff managers and presented extensive information from four companies, one of which was DMG. SSA had identified three additional vendors so there were a total of seven under consideration. All seven companies were solicited for proposals that were subsequently reviewed.

It was determined that DMG's offering best fit SSA's needs and that each of the others had one or more fatal flaws. Kunko participated in the review and agreed with the final selection.

Due Diligence

- Staff reviewed DMG's customer list and found a prominent customer in Oshkosh, Wisconsin: EAA. SSA staff called senior management at EAA and were given a highly favorable rating of the DMG system as well as DMG staff capability. In addition, SSA staff spoke with representatives of the Institute of Real Estate Management and the Association of Investment Management and Research. Both groups gave DMG positive evaluations.
- Legal counsel reviewed the proposed agreements and determined them to be consistent with the norm in the computer industry.
- SSA requested, and received, an up-front written estimate of conversion costs. (conversion is defined as the required modifications to adapt the DMG application software and the existing SSA data structure to the SSA system requirements)

Moving Forward

In February 1998 the Board of Directors was advised that a formal proposal to change software systems would be presented for consideration. The Executive Committee, in June 1998, reviewed a detailed proposal to accept the DMG offering and voted unanimously to move forward on the project at an estimated cost of \$102,020 (\$15,000 for hardware, \$68,020 for software licensing and \$19,000 for conversion). Further, the Excomm directed that the detailed report be presented to the full Board of Directors at their forthcoming meeting. In September 1998 the Board of Directors received a six page detailed report of the selection and costs associated with DMG. The Board offered no objection to the report and approved of the Excomm actions.

“The Crash” and DMG Cost Over-runs

An unexpected characteristic of DMG was their very delayed billing process. Their invoicing ran as much as 3-4 months late. Within the first 3-4 invoice cycles it became apparent that they would reach their cost “estimate” well in advance of the system coming on-line. When this became apparent work halted on the project so that SSA could engage in discussions to resolve the impending conflict.

In the summer of 1999 the Digital equipment crashed and died. In order to keep the doors open and basic functions underway staff cobbled together a system using Quick Books and Excel to maintain the basic operations. This was a stop-gap at best.

Legal counsel was consulted concerning the DMG cost problems. Their advice was to negotiate a new price recognizing that this kind of difficulty is common in the software industry. Staff also consulted again with EAA only to discover that they were likewise facing the same issues. SSA staff then went to Chicago and met with the President of DMG as well as senior managers. The negotiations resulted in setting a maximum price of \$151,000 for the necessary modifications related to the conversion. This negotiated price was reported to the Executive Committee through the Administrative Committee and was accepted.

Relations with DMG were one of ongoing difficulties and bad news. Information was reported as it evolved. In September 1999 the Board of Directors received initial notification of a cost over-run. Preliminary information cited the over-run at 40%.

The Board was advised of the negotiated “cap” on conversion costs. In January 2001 the SSA Treasurer reported to the Board of Directors that costs were then projected at \$160,000.

Implementation

The DMG system became operational in phases. The accounts payable module came on line in 1999. The membership module came on line in the summer of 2000 and the order entry/merchandise as well as the accounts receivable came on line in October 2000. The system has been fully functional since that time.

The DMG Software Costs

In 1998 the approved budget was \$102,000 for software and associated hardware. With regards to the software the initial budget for license and conversion was:

\$ 68,020 License Fee
<u>\$ 19,000</u> Modification and Conversion
\$ 87,020
<u>\$ 15,000</u> Associated Hardware (see details below)
\$102,020

The 1999 negotiations capped modification and conversion costs at \$151,000 (with a later addition of \$10,000 by agreement of the Chairman). Final costs as of March 2002:

\$ 68,020 License Fee
<u>\$157,582</u> Modifications and Conversion
\$225,852
<u>-87,020</u> Budgeted amount
\$138,832

The final software cost over-run was \$138,832.

Hardware Costs

\$15,000	Approved as part of original purchase
<u>\$20,000</u>	Approved by Board at Elmira meeting (separate action)
\$35,000	

Actual Expenditures:	
\$ 2,508	Epson Highspeed Printer
\$17,177	2 Servers
<u>\$16,666</u>	8 Gateway PC workstations
\$36,351	

Addendum 1

Key Chronology

Date	Event/Action	Reference
Feb. 98	Board advised of need for new software and hardware with proposal forthcoming.	Pg. II-I-4 President's Report Portland Book
Jun 98	Executive Committee reviews proposal and unanimously approves acquisition of the hardware and DMG system. Excomm directs full report be presented to the Board.	Pg. II-C-1 Excomm Minutes Elmira Book
Sep 98	Board receives six page report detailing selection actions and costs of DMG system. Administrative Committee Chair Reports to Board that he met with DMG managers.	Pg III-H-15 Elmira Book Pg. 4 Elmira Board Minutes
Summer 99	SSA negotiates revised cost schedule. Administrative Committee and Executive Committee informed.	
Sep 99	Board informed of current cost over-run and negotiated agreement capping costs.	Pg. III-A-1 Hobbs Book
Mar 00	Board advised of Digital System crash and temporary application solution.	President's Rpt. Albuquerque Book
Jan 01	Treasurer reports projected costs of \$160,000 to Board. Staff report to Board discussing system and over-run.	Pg. 2.1.1 Indianapolis Book Pg. 3.2.2 Indianapolis Book

Addendum 2

www.ssa.org

During this same period of time the SSA constructed and implemented a new web site on a dedicated server based in Seattle, WA. This system is not part of the internal office system and is a separate operation. Eventually the two will work together to provide on-line renewals and other member services. This part of the IT conversion was accomplished using a substantial level of donated services which saved the SSA a significant sum of money. Following is an outline of the associated costs:

\$ 20,000 Hardware (Dell Server)
 \$120,000* Programming and support
 \$ 25,500** Microsoft Commercial Software
 \$165,500 Total Value

*Professional Services Donated
 100 working days (8 hrs/day) @ \$75 per hour
 50 working days (8hrs/day) @ \$150 per hour
 **Software donated by Microsoft Corporation

\$ 20,000 Total out-of-pocket cost for SSA

\$145,000 Savings to SSA

Document 3



Memorandum

To: Tim Welles
CC: Larry Sanderson
From: Chip Garner
Date: 4/5/02
Re: SSA Computer System

I went to Hobbs to look for answers to questions about the computer system cost overrun. My main concerns were to evaluate the system, to determine and document what happened, and to look at any errors made with the hope of preventing a repeat. This also gave me the opportunity to see how our SSA staff functions.

The white paper describes the events concerning the overrun. This letter attempts to answer some of the questions not addressed there.

SSA record keeping is excellent. They keep good records and people (not just one person, a common mistake) can find them. The attitudes of Larry and the staff are open. This greatly facilitated my task. Our stated policy is that all records, except personnel files, are opened to any member and this has certainly been my experience.

Alan Gleason, our new accountant, provided a listing of all the checks written to DMG. This proved to be a very effective method of checking what happened, and tallied with the rest of the documentation. There were no missing pieces, as in “we can’t find that”, or unverifiable verbal agreements. These, and the nature of the documents I saw, lead me to believe that documentation of the computer system purchase is complete. The information available at Hobbs provides a clear picture of what happened.

The computer system is expensive because the tasks we want accomplished are numerous and growing.

Some of these are: the SSA runs a retail business, the membership consists of different member types, chapter dues billing requires fractional dues and unearned dues must be accounted for, we administer ten trust funds and thirteen other various funds that require specific accounting, and FAA delegation may soon require that we keep track of glider pilot licensing. These tasks could be performed with minimal software, such as an off the shelf database and accounting program, but this would require significantly more personnel time. We have chosen an integrated, customize software package to minimize the staff time required to do what we need done, now and in the future.

The system works well. For example, closing a financial month required that over 100 manual journal entry adjustments be entered by hand under the old system. Automation not only reduces the work, but also protects against errors as all trust fund transactions are captured by the system. When a sale comes in, it is entered once by any one of several people. Journal entries are automatically made, and appropriately updated when the item is shipped. The SSA office has entered the computer age.

I do not know if we could have gotten an equivalent system for less money, but I doubt it. The alternatives were and are:

- do more by hand,
- create our own program using off the shelf pieces,
- or buy it from a different vendor.

I believe in automation for tasks that are as numerous and complex as ours; I think the system is less costly than the salaries would be and far less error prone than doing it by hand. Creating our own equivalent program would require hiring programmers, and the effort to get it up and running is very hard to estimate. This would be a risky approach for SSA. Another vendor may have performed better, the anecdotes I have heard about computer system cost and schedule over-runs do not lead me to believe so.

Here is Mike Culver's take on the system when asked: "Why didn't we use off the shelf software like Excel and QuickBooks?"

"We need a scaleable multi-user system, with controls and procedures in place that assure the SSA board that all data is properly cared for. Specifically, the advantages of such a system are:

- Redundancy in data can be reduced
- In turn, inconsistency issues that arise due to multiple copies of data are reduced
- Data can be shared between users concurrently
- Data standards (format) can be enforced
- A consistent set of business rules (the real value of software) are uniformly applied
- Security restrictions can be applied to users
- Data integrity is more readily assured via centralized backups
- Conflicting data requirements can be resolved

The current system addresses these needs.

One "possibility" would be to run the SSA on a hodge-podge of home-business solutions such as Excel and QuickBooks. In my opinion, this would be the beginning of the end for the SSA. (And the association's death would be rapid as well as painful.) Think of it as moving to a pre-VAX era.

Excel is unstructured data in a single-user format, with multiple instances living in random places. How would it be backed up, integrated, and structured?

Likewise QuickBooks is a single-user system, and it fails to capture the business rules of a non-profit association. The costs associated with a major data failure – be it lost, corrupt, or unusable – are catastrophic.

If such an approach were seriously considered, the financial impact would be considerable. There are **serious** labor costs associated with maintaining consistent data in multiple locations, as well as the opportunity cost of lost business (merchandise and member revenues) caused by non-scaleable and outdated methodologies.

Given the budget, and available off-the-shelf solutions, the SSA did an admirable job of implementing a major new software solution. Could things have gone better? Of course, but the very challenges that the SSA faced (mostly project management) were the result of a tight budget that precluded trained staff with formal IT project management skills.”

DMG over-ran their initial estimate of \$19,000 for conversion and modifications by \$138,832. This is a little ridiculous, even for software. There are many pages of telephone call notes in which Nancy asks again for an item to be fixed, and negotiations have at times been painful. However, the system is working and the recent support from DMG has been very good. The current project manager is also the programmer, which is an indication that DMG is straightening out their management structure.

Our payments to DMG for conversion and modification include some data conversion, travel expenses, and project management but most of the money was for programming hours to modify the code to meet our needs. I looked at several of the hourly bills and the work done. I am a programmer and have often had to estimate programming tasks, although of a more technical nature than this project. It seems to me to be a reasonable amount of time and money for the work done. The initial estimate was the only thing done really badly by DMG.

The SSA office, mostly in the form of Nancy, did an excellent job of making sure we did not pay DMG for inappropriate items and that the system does what it is supposed to do. It is obvious that a lot of effort has gone into hammering out the details. Larry and the staff did very well with the re-negotiations, DMG repeatedly asked for much more than they got and tried to refuse agreeing to any budget.

The documentation shows that the SSA decisions to start and continue this project were made at the appropriate levels, the BOD and EXCOM were involved. The board was informed, if not always well informed. I do not think this affected the outcome. This is the fault of the board as well as Larry. We can do better in the future, and the computer system can help by providing timely reports.

I focused on the money going out, not where it came from. This was straightened out at the Ontario board meeting where we approved the loan. As I understand it, the board or EXCOM approved the expenditures and left it up to Larry to decide which pot of money to take it out of in the short term. This is appropriate in my opinion. I also think that it is a primary responsibility of the board to understand where money is coming from and going to, and how much. I intend to pay a lot more attention in the future.

An independent audit of SSA accounting, and/or of the computer system purchase, has been suggested. (An accounting firm reviews SSA’s books each year but does not do a full audit.) After visiting Hobbs, I do not believe that this is necessary or a good way to spend money. I do not know how much an audit costs, though we may be able to get a break from Arthur Anderson. Any SSA member can go to Hobbs and look through the records until they feel that they understand what is going on. I think this is more credible and more appropriate for a volunteer society than an outside audit.

I am happy to be able to report this, before coming I did not know how complete or findable the records would be, and knew it was possible that I would find more questions than I answered.

Monthly and Future Costs

We are paying part of the total \$225,872 in two loans, one from DMG and one from ourselves; the SSA Foundation. The loan from DMG is \$1374.88 per month for thirty-six months, thirty months of which have been paid as of February 13, 2002. The loan from ourselves is also for three years, and is approximately (variable interest) \$5,000 per month, ending on October 31 2004. We are paying a license fee of \$182.85 per month which continues for as long as we use the system, and a maintenance fee of \$975 per month. The \$975 payment could be reduced or increased, depending on the needed support. I expect this payment to be reduced as the staff becomes more accustomed to the system. We will probably need to pay for special upgrades from time to time, for example if we start licensing glider pilots. We will obviously need to continue to upgrade PCs.

I went to Hobbs with a lot of questions, of my own and from various SSA members. I was especially concerned that we might still be pouring money into the wrong system, and could not understand why it is so expensive. The SSA computing requirements are surprisingly complex, but they are real requirements. The system we have is a good one, and it should supply our needs well into the future. I was also concerned that I might not learn much, and was very glad to find an open attitude and complete records. I was able to answer all the questions to my satisfaction, though I am sure that someone will have another.

End of all Documents