Request for Information (RFI) 912:9-001
Automating Veterans Disability Claims

Final Report

September 2009

Virginia Department of Veterans Services

COMMONWEALTH of VIRGINIA

Department of Veterans Services

Provided by Bass' Emprise, LLC, in collaboration with EquaTerra, Inc.

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1. INTRODUCTION

1.1 EXECUTIVE SUMMARY

The Department of Veterans Services (DVS) is organized into five service delivery sections:

- Benefit Services
- Veteran's education
- Care centers
- Veteran's cemeteries
- Virginia Wounded Warrior Program.

Four citizen boards work closely with the agency to support the effective delivery of services to Virginia's veterans – the Board of Veterans Services, the Joint Leadership Council of Veterans Service Organizations, the Veterans Services Foundation, and the Veterans Care Center Advisory Committee.

In terms of Benefit Services provided to veterans and their families, and specifically referring to services that provide assistance with obtaining disability benefits, complex laws with entitlements linked to rigorous documentation and proof-of-eligibility make the process of developing and filing a disability claim with the Department of Veteran Affairs (VA) time-consuming, complicated and confusing. VA adjudication is strict and approved claims take a year (on average) to process. If, in fact, data omissions or errors exist and a claim is denied, it can turn into an appeal process that can take several years to complete. Simply put, claim accuracy is an important issue. With 814,000 veterans in Virginia (117,000 of which are currently receiving disability compensation benefits) the burden of the increasing claims workload on DVS staff is significant. Amplified by the continuing need for redundant data entry and old technology that does not provide an end-to-end workflow (i.e. DVS-to-VA), the current claims creation and submission activities within DVS will continue to be labor intensive, costly and sluggish.

DVS leadership believes a better process and an automated system for the electronic preparation and submission of veterans' disability claims will reduce the time it takes to create highly-skilled service reps and (ultimately) result in more complete and accurate initial claims that present the necessary supporting information in a clear and consistent manner. The desire and belief is that this will lead to faster ratings decisions by the VA, higher initial approval ratings (fewer appeals) and veterans receiving their disability compensation checks sooner. These potential improvements would provide DVS a more cost-effective way to serve more veterans within current human resource level constraints.

In early 2009, DVS leadership decided it was time to consult the market to determine the range of solutions it may offer that can take the sting out of the current complex, labor-intensive and sluggish disability claims process. This is the Request-for-Information (RFI) process that was recently completed which, combined with the original proof-of-concept, has resulted in significant learning regarding how the market may approach re-engineering and automating the claim creation and submission process.

The RFI cited a number of constraints/requirements for responding vendors to address. Most central to DVS leaderships' expectations were the desire for all solutions to have an intuitive and intelligent claims creation functionality, similar to that found in the tax preparation (and other) industries, and robust case management functionality. Within the body of the remainder of the report, any reference to "solution" implies both those requirements.

In summary, it appears the market has indicated that DVS leadership can expect viable solutions in three categories:

- Custom Applications
- Commercial off the Shelf (COTS)
- Software-as-a-Service (SaaS)

The market responses have also indicated the following in terms of solution implementation:

- Average time-to-implement is 1.5 years
- The approximate 5 year cost (implementation and operation) is in the range of $2.8M - $3.5M
- In a scenario where Return-on-Investment (ROI) includes both internal cost savings and conservative projections for increased benefits to veterans, cost recovery would be approximately 4 years

1.2 PURPOSE

The purpose of this final report is threefold: (1) Describe the process followed for executing RFI 912:9-001 (Appendix A), (2) summarize the market response to the RFI, and (3) identify three viable approaches for DVS leadership to consider as they contemplate the potential for initiating a formal project to improve and automate the DVS portion of the Disability Compensation Claims Process (DCCP). Regarding item #3 above, the method used is based upon the Commonwealth's Project Management Guideline (ITRM Guideline CPM 110-01) regarding project analysis (pages 17-29). It is important to note that the approaches identified in this report do not map directly back to any one vendor response.

Rather, they are an accumulation of the Review Team's analysis and learning based upon the market information received. Last, this report should not be construed as providing any political, fiscal timing or fund sourcing advice.

1.3 SCOPE

As stated in the original RFI document, the DCCP involves the original creation and storage/retrieval of Disability Compensation Claims Packages (i.e. Packages) and their ultimate submission to the VA for adjudication. That was the scope of the RFI and continues to be the scope of this report. The RFI and this report specifically address the DVS portion of the DCCP and apply to original disability benefit claim submissions. The RFI and this report do not address the VA portion of the DCCP. For a detailed depiction of the full DCCP, including the DVS and VA portions, please see Appendix B. This diagram and flow present an actual claim event (names and identities removed, of course).

2. RFI PROCESS

The RFI process was executed in three stages (total duration approximately 4 months):

Stage 1: RFI Creation – Leverage existing DVS materials and knowledge, conduct interviews/surveys where necessary, build and issue the RFI.

Deliverable: Completed RFI that is "tuned" to solicit the broadest possible market response in terms of vendor tools, approach and methodology. The RFI will contain relevant major claims process and systems requirements and business case criteria. All appropriate reviews/approvals by procurement, DVS and VEAP (Commonwealth legal counsel if necessary) will be obtained.

(Status: Completed June 5, 2009)

Stage 2: RFI Execution – Respond to market inquiries, form RFI evaluation team, create evaluation criteria and schedule, distribute vendor responses as appropriate to evaluation team members.

Deliverable: Report to DVS and VEAP management detailing vendor Q&A interactions, procurement staff concerns and issues (if any), RFI evaluation team membership, list of distributed vendor materials and recipients, specific evaluation schedule to be followed.

(Status: Completed July 6, 2009)

Stage 3: RFI Evaluation – Evaluation of responses, Q&A exchanges with vendors, identify three best fit responses.

Deliverable: Report to DVS and VEAP management summarizing the evaluation team's position on (rating for) each vendor response and identification for the three best fit approaches. Report will also include any supplementary observations and concerns from the evaluation team. It is envisioned that DVS and VEAP management would then leverage this final deliverable to help determine if a formal project proposal and charter should be pursued.

(Status: Completed September 1, 2009)

3. MARKET RESPONSE SUMMARY

DVS believes that the current DCCP is labor-intensive, inefficient and is made extremely complex due to the quantity of rules and regulations governing the DCCP (similar in scale to the complexities of the US tax statute) and the diffusion of data/evidence. DVS believes the DCCP can be improved in terms of the efficient, accurate, consistent and automated application of rules and regulations, collection of data/evidence, creation of claims Packages, organized storage/retrieval of claims Packages and automated submission to the VA. Solutions DVS leadership is potentially interested in, as explained in the RFI, may include (but not be limited to) components such as process improvement methodologies, COTS software, customized (developed) software, and sourced services. Further, DVS indicated that viable solutions should be cost-effective and have a clear and obvious balance between innovation, maturity and reliability.

DVS' past research and proof-of-concept, combined with subsequent research and interview activities conducted by the Consultant, has resulted in the expectation that the following major characteristics or requirements will be a part of any economically and technologically feasible solution:

1. A web enabled application that allows both the Veterans and the DVS officials to initiate the claims process.
2. The 'intake' process should be intelligent and intuitive (like an interview) and not be "form driven."
3. It should be easy to configure the solution to add and modify business rules.
4. The solution should provide robust "case management" capabilities.
5. The solution should be able to interface with other systems leveraging industry accepted "web services" standards.
6. The solution should make use of a modern relational database.
7. Able to interface with the Microsoft Outlook email environment such that electronic claims packages can be securely delivered to the VA using public key encryption (128 bit).
8. Solutions must comply with applicable Commonwealth of Virginia technology-related policies, standards and guidelines (http://www.vita.virginia.gov/library/default.aspx?id=537).
9. Solutions must clearly demonstrate technical and economic feasibility as defined in the Virginia Information Technologies Agency (VITA) ITRM Guideline CPM 110-01 Section 2 – Project Initiation Phase.

There were a total of 21 vendors that responded to the RFI. The vendor pool was comprised of small, medium and large businesses, with some having headquarters and/or offices in Virginia. Many responders are certified with (or named as a solution or consulting partner to) major product developers. Below is the list of responding vendors in random order:

1. UCSoft *
2. Pitney Bowes, Inc.
3. Salesforce.com
4. EDAC Systems, Inc. *
5. BCI~IT
6. Vertex Information & Computer Consulting Services, Inc.
7. NWN Corporation
8. McClain Group II, LLC
9. Nortel Government Solutions, Inc.
10. Tracen Technologies, Inc. *
11. Accenture
12. New Genesis organization, LLC *
13. Precision Images (ServiceSource, Inc.)
14. Stratizon Corporation
15. Northrop Grumman Information Technology, Inc.
16. Alliance Enterprises
17. Noblis Enterprise Services
18. RightNow Technologies
19. IDoxSolutions, Inc.
20. CapTech Ventures, Inc. *
21. Hyland Software, Inc.

Note: '*' indicates a registered Virginia SWAM business based upon information supplied in the database provided by the Virginia Department of Minority Business Enterprise (DMBE). It should also be noted that there were several other small and/or veteran-owned businesses from other states that responded to this RFI.

An RFI Review Team of eight (8) people was established to analyze and provide comments on the vendor responses as input to this report. Beginning July 6, 2009, which was the date when all vendor responses were due, the Review Team worked according to this general schedule:

Jul 9 - Distribute responses to Review Team

Jul 23 - Review Team completes initial individual reviews & top 5 questions per vendor (if any)

Jul 24 - Review Team conference call to discuss views and questions

Jul 27 - Questions are sent to vendors

Jul 29 - Vendors responses received and distributed to Review Team

Aug 3 - Review Team completes individual reviews

Mid to Late Aug - RFI Report drafted and finalized

Based upon the Commonwealth's Project Management Guideline (ITRM Guideline CPM 110-01) regarding project analysis (pages 17-29), the RFI Review Team considered each response using the following criteria:

Business Process Impact - How the potential solution will impact the current business processes and what degree of organizational change and stakeholder resistance is anticipated.

Technical Feasibility - The level of technical complexity, standards compliance, and special considerations such as technical experience required for project team members.

Maturity of Solution - The level of awareness organizations have regarding this solution, tool reliability/obsolescence/innovation.

Resources Required - The personnel, facilities, software, hardware, supplies, etc, needed to implement the solution and their approximate level of usage and costs.

Constraints Impact - How well the solution fits within the constraints discussed in this RFI as well as consideration of any constraints brought forward as part of the response itself.

Cost Benefit Analysis - The balance between costs (implementation and ongoing), the projected measurable benefit expressed in terms of dollars, and the risks involved.

Return on Investment (ROI) - The value of making the investment in the solution.

By adhering to the Commonwealth's guideline and review criteria mentioned above, DVS leadership will have information necessary to make a well-informed decision regarding the possibility of pursuing a formal project through the established Virginia Information

Technologies Agency (VITA) procedures. If a decision is made to proceed, the next procedural step for DVS leadership would the development of a project proposal and charter.

While vendor responses ranged from "high-level" to "detailed" in terms of content, all of them added value to this RFI review process since they revealed an innovative range of thought and 6 key trends:

Trend #1 -- The market indicates it has solutions that address DVS' need for intuitive and intelligent claims creation and case management. These solutions fall into three general categories: COTS at 40%, Custom Application at 40%, and SaaS at 20%.

Note: the percentages above are based upon the RFI response population and they do not suggest the percentage of solutions implemented in the marketplace.

Trend #2 -- The market indicates that the success of this potential project depends a great deal upon analyzing, redesigning and improving the claims creation and submission process either prior to (or as a part of) automating it. Responding vendors saw clear opportunity to better understand requirements, identify inefficiencies and real cost savings, and gain insights into training and other related change management topics by emphasizing process improvement early in the project. Though not stated specifically by the vendors themselves, the Consultant also believes that emphasizing improvements in this area will yield better overall project cost estimates and fewer realized cost variations in the long run.

Trend #3 -- The market identifies viable solutions largely residing on the Microsoft product platform and in several cases those solutions leverage the Microsoft development toolsets. While other viable platforms could be used (e.g. Unix), this trend indicates that solutions identified as part of some potential future procurement will likely not present substantial issues regarding Commonwealth technology standards or introduce significant compatibility issues.

Trend #4 -- The market indicates it has significant previous experience in solving similar case management and claims creation/submission problems in the public sector. Key examples at the Federal, State and Local government levels were cited frequently in many vendor responses. This indicates the market is reasonably mature in terms of providing solutions to the DVS business problem.

Trend #5 -- In terms of a dollar-valued ROI, the responding vendors place their greatest emphasis on increased staff capacity/productivity savings achieved through improved processes and technology. Please know that the responding vendors often times used other valid (but more speculative) variables in their calculations – for example, reduction in mail, reduction in paper, time gained from fewer lost documents, time gained from fewer calls and other administrative activities attached to the claims process, etc. While legitimate, these more speculative variables can be quite arguable in terms of prediction and quantification. So, to be conservative, the Consultant believes that staff capacity/productivity improvement is the primary (and quite measurable)

internal ROI component, meaning it is a return that accrues back to DVS internally to either redirect to other existing work (soft dollars), improve service through new work (soft dollars) and/or eliminate positions (hard dollars). In addition, one responding vendor suggested there be an external ROI component that calculates the dollar-value of a greater volume of positively adjudicated claims. Thus, if new processes and technology result in an up-tick of positively adjudicated claims and, consequently, more money being distributed to veterans more quickly, that value can (and should) be calculated and included as an external component of ROI. Although not a component that would result in a direct return to DVS, the Consultant agrees that these are hard dollars worth including in the overall calculation since it represents clear value back to DVS' customers. In summation, an overall ROI that focuses on the dollar-value of these two components is measurable, conservative and provides clear linkage back to the two main business problems defined in the RFI – (1) the upward and uncomfortable pressure DVS feels to increase staff in a time of decreasing State revenues and budget cuts, and (2) the need to get more legitimate disability compensation benefits in the hands of Virginia's veterans more quickly.

Trend #6 -- Responding vendors have uniformly made the assumption that DVS would provide a project sponsor, project manager and as many subject-matter-experts (SMEs) as required to fully dissect the requirements and participate in each stage of the project. They would be expecting a substantial commitment from DVS leadership and staff.

In terms of cost, responding vendors were asked to provide data for vendor staff labor, services, software tools, hardware, materials and supplies, facilities, telecommunications, training and contingency. Approximately 85% of the vendors responded with costs. Though they did vary in terms of assumptions and completeness, their efforts were very helpful and much appreciated. Based upon the responses received, the vendors have cautiously suggested that the 5-year implementation and operational costs (combined) for a project of this magnitude (across all solution categories) would range from $1M to $10.3M. This calculates to an average combined 5-year cost of $3.7M. However, given that approximately 80% of the responses showed estimated costs near or less than $5M, by factoring out the higher cost estimates from that data set the average combined 5-year cost becomes ***$2.9M***.

Note: the above costs reflect the accuracy levels expressed individually by the vendors (i.e. 10%, 15%, 25%, etc) and/or explicit contingency markups. The average markup adjustment made to these costs was approximately 29%.

In terms of probable time-to-implement, the responding vendors have suggested that implementation of all functions may range from one (1) to four (4) years across all solution categories. Based upon the population of responses received, the market suggests an average time-to-implement of 1.5 years. However, given that approximately 90% of the responses showed a time-to-implement of less than two (2) years, by factoring out the higher time-to-implement estimates from the data set the average time-to-implement becomes 1.25 years.

Given this more precise average is very close to the original calculation, the Consultant recommends using the more conservative number of ***1.5 years***.

In terms of internal ROI, and considering Trend #5 above, the market suggests that the range for expected staff capacity/productivity improvement is between 20-50% once a solution is fully implemented. Based upon the population of responses received, the market suggests an average expected staff capacity/productivity improvement of 28%. However, by factoring out the higher of these estimates from the data set the average expected staff capacity/productivity improvement then becomes ***24%***. This percentage would then be applied to the total volume of FTE currently addressing claims which, according to the RFI process, would be:

24% of 24 claims FTE = 6 FTE x ($48K, fully loaded cost of 1 claims FTE per year) =

$288K returned staff capacity/productivity per year

Using this staff capacity/productivity calculation ($288K) plus the average combined 5-year cost of $2.9M (the investment) and a time-to-implement of 1.5 years, it is possible for DVS to recoup its investment in ***12 years*** (no assumptions have been made regarding the time value of money):

Year 1 $0 + Year 2 $144k + Years 3-12 $2.9M = $3.0M,

… Thus, this scenario recovers the initial average investment in approximately 12 years

Continuing on with external ROI, if as a result of process and system improvements veterans are receiving more benefits more quickly, then DVS would recoup its investment more quickly. For example, in 2008, approximately 117,000 of Virginia's veterans receive disability compensation benefits that average $9800 per year per veteran (please see statistics provided in Appendices C and D). This comes to an approximate total of $1.15B annually. If the process and technology improvements brought about by a project of this nature resulted in just a .005% (as in 1/2 of 1%) improvement in terms of benefit value delivered over the full 5 year project horizon, that would equate to approximately $5.75M in hard dollar value returned to Virginia veterans and their families. Considering these very conservative figures, the ROI horizon mentioned above would be reduced to approximately ***4 years,*** assuming the benefits would accrue in years 3-5 at a presumed 25%, 30%, 45% annual rate:

Year 1 $0 + Year 2 $0 + Year 3 $1.44M + *Year 4 $1.73M* + Year 5 $2.58M = $5.75M,

… Thus, this scenario recovers the initial average investment in approximately 4 years ($3.17M)

4. VIABLE MODELS AND DESCRIPTIONS

As mentioned previously, the market responded with three (3) categories of solutions – Custom Applications, COTS and SaaS. This section of the report is intended to consider each of these solution categories separately in terms of key attributes and observations relating to the following review criteria – Business Process Impact, Technical Feasibility, and Maturity of Solution. At the end of each section, key advantages and disadvantages are also highlighted along with an average combined 5-year implementation and operation cost that is based upon the most complete vendor responses for that type of solution.

4.1 CUSTOM APPLICATION

Business Process Impact

Responding vendors offered a custom application development approach that includes various forms of process redesign/improvement as part of the requirements gathering stage. They also employ thorough implementation methodologies which would provide for a smooth integration between the technical implementation and process change management. The potential solutions would serve to be a major improvement over the current claims process. A thorough implementation accompanied by a structured change management process would ensure smooth transition and manage end-user resistance.

Technical Feasibility

Generally, the solutions use a centralized SQL standard database with web services as the "middle ware" between the database and any application interfaces used to communicate with the databases. Business rules are encapsulated in the web services, thus providing for standard processing between the needed interfaces. The solutions would offer a web based application software that would require users to log onto a designated web site via a predefined URL. Once logged in, the user would have appropriate use of the system based roles-based security parameters. If DVS determines that a custom developed system is the option of choice the evaluation should focus not only on the proposed end system but the development methodology and approach. The vendors who responded with a custom built solution possess varying approaches and development methodology which would be key elements in a proposal evaluation.

Maturity of Solution

Responding vendors have proven track records with numerous clients using systems similar to a system that would be used for DVS claims processing. For the most part, solutions would be developed using mature industry accepted tools such as .Net and JAVA

Enterprise which are reliable and common development platforms. Based upon RFI responses there is reasonable confidence that a custom application could be developed to that would specifically address DVS' claims processing constraints and requirements.

Key Advantages

Customized applications can provide exactly what you need. The actual users are very good at describing the work flow and, as a result, the software can be effectively designed to increase user efficiency.

You own the software and the code behind it which affords you more control over future enhancements so the software can change as your business changes.

Once the software is developed, the developers will be familiar with your work process and will be well-suited to provide outstanding technical support and make needed enhancements to your software.

Since DVS staff would have input into the design, they would be more readily accepting of the new system. They will also require less training because of their involvement in the design and development process.

Key Disadvantages

Since custom applications are just that – custom – there is typically not as much existing code that can be leveraged to shorten the development cycle.

Over time, custom applications can become difficult to manage and maintain if the vendor's involved in maintenance and enhancement activities are changed out frequently and technical documentation is not properly maintained (which requires a lot of energy to achieve).

Selecting a custom application approach means making a real commitment to keeping it current as related technologies change around it. Of course, this commitment requires people, time and money.

Cost Summary

Specific to the Custom Application approach, and referencing the most complete responses to the RFI, the responding vendors have suggested that the average combined 5-year implementation and operational costs for a project of this magnitude would be ***$2.8M*** and probable time-to-implement would be ***1.5 years***.

4.2 COTS

Business Process Impact

Implementing COTS solutions largely means adopting the processes that are already built into the products. However, responding vendors have indicated that their products have significant flexibility by allowing functions and workflows to be largely defined through the incorporation of business rules (i.e. configuration activities) as opposed to developing code. Accepting that the flexibility of these products is reasonably significant, it is also reasonable to expect some degree of inflexibility – meaning that there will be certain aspects of the methods (or processes) these products employ that cannot be altered. What this means is that a COTS approach may represent more of a process end-state to which an effective path must be found. This calls for strong training and organizational change management. Several of the vendors that responded to the RFI included change management experts who would work in partnership with DVS to optimize results through periods of transition.

Technical Feasibility

The RFI responses describe several options of COTS solutions that could be customized (largely through configured business rules) to fit DVS claims processing requirements. There are several solutions that would provide process automation, claims process metric collection, business rules definitions, process models and knowledge databases. The COTS solutions that would fit DVS requirements would generally consist of a set of servers that could be hosted and managed by existing VITA resources augmented by vendor product experts. The vendor responses confirm that there are COTS solutions that provide the required enterprise integration, process execution, information management, capacity and scalability that meets DVS requirements.

Maturity of Solution

There were a significant number of references included in vender RFI responses describing COTS solutions currently in operation supporting customers with comparable claims processing systems. Vendors also describe significant experience in project leadership and business process management in addition to awards and impressive statistics on their system's impact on process efficiencies, innovation in process redesign and successful implementation. Based on the RFI responses there is reasonable confidence that a mature COTS system could be identified and implemented that addresses DVS' claims processing requirements and constraints.

Key Advantages

COTS software is largely prebuilt, reusable and ready to be configured.

COTS software receives continuous vendor attention and, in doing so, stays current in terms of the market(s) served.

Generally, COTS software is quite methodical in terms of installation.

COTS software usually meets most "basic" business needs.

COTS software usually enjoys a wide customer base so vendors are constantly getting feedback in terms of future improvements. All users of a particular COTS product clearly benefit from this. Also, a wide customer base generally creates a reliable product in terms of availability and performance.

Key Disadvantages

COTS applications, while highly configurable, sometimes do not meet complex process requirements/preferences of the customer. This may trigger the need for COTS customizations (which often prove to be costly) or adoption of processes not completely endorsed by the organization. The latter can trigger staff adoption issues if not effectively addressed through strong training and change management focus.

You don't own the software and, generally speaking, an organization must closely follow the vendor's stated path of maintenance and upgrades in order to keep a system technically current and supported. The pace for this is typically brisk and while timely maintenance and upgrades help keep a system technologically current (which is good) it can also exhaust an organization in terms of resources put towards testing and training over time.

Cost Summary

Specific to the COTS approach, and referencing the most complete responses, the responding vendors have suggested that the average combined 5-year implementation and operational costs for a project of this magnitude would be ***$3.5M*** and probable time-to-implement would be ***1 year***.

4.3 SOFTWARE-AS-A-SERVICE (SAAS)

Business Process Impact

Responding vendors with SaaS solutions offered a comprehensive implementation methodology that would integrate well with business process change management. Largely based upon Customer Relationship Management (CRM) technology, these solutions are highly configurable in terms of adapting to the customers desired process changes, though they did acknowledge the occasional need for explicit coding to accomplish certain process requirements.

Technical Feasibility

The Software-As-A-Service (SaaS) solution has the potential of providing a hosted CRM model which provides a solution that fits DVS claims processing needs. Vendors describe a secure web portal where a user could establish a secure identity with DVS, have their own claims self service portal from which they could manage and create cases, attach documents, browse solutions and FAQs and provide feedback to DVS staff. This self service capability would help applicants view critical case information online, provide additional information to help support case completion and provide customers a more engaged experience. A combination of Case Management, Contact Management, Knowledge Management and Activity Management would address the key needs defined in the RFI. While a SaaS is a potentially viable solution it would require due diligence concerning hosting and administration. Additionally, details concerning data storage and backup/recovery services would be required if the host facility is a location other than VITA. A SaaS solution would not require any specialized internal technical experience if allowed to be hosted by a vendor.

Maturity of Solution

There are a significant number of customers currently using SaaS solutions including several government agencies. SaaS CRM solutions are very mature using current technology to implement a web front-end with a SQL database back-end over secure transmission protocols. Based on the RFI responses there is reasonable confidence that a mature SaaS system could be identified and implemented that addresses DVS' claims processing requirements and constraints.

Key Advantages

No special client/server software installation or maintenance, the vendor makes all of the changes at their site(s) – it's a service.

Frequent, easily digestible changes and upgrades -- SaaS vendors typically improve their applications very often and avoid large scale maintenance and upgrade activities. This reduces risk and avoids significant re-training needs.

Reduced IT support burden on internal staff.

Similar to COTS, SaaS software usually enjoys a wide customer base so vendors are constantly getting feedback in terms of future improvements. All users of a particular SaaS product clearly benefit from this. Also, a wide customer base generally creates a reliable product in terms of availability and performance.

Key Disadvantages

Data resides at the vendor's site which can, in certain situations, be difficult to reconcile with internal security standards.

Truly at the mercy of the vendor, this is why a solid contract with clear performance expectations and roles and responsibilities must be created, adhered to and managed closely.

Cost Summary

Specific to the SaaS approach, and referencing the most complete responses, the responding vendors have suggested that the average combined 5-year implementation and operational costs for a project of this magnitude would be ***$3.0M*** and probable time-to-implement would be ***1 year***.