BizTechSherpa

Business Technology Advice for Business Leaders

Vision:

For

ACME Corp

Electronic Blast Report Rewrite

December 17, 2018

1. Overview of the Problem & Proposed Solution

1.1 Overview of the Business Opportunity to Improve

The current Electronics Blast Report system is a critical element for ACME Corp in the planning, performance, and recording of their blasting services. ACME sells the supplies and equipment for blasting in areas such as mines, construction projects, etc. They also sell the services needed to plan and conduct the blast. This is managed through the software application known as the Electronic Blast Report (EBR).

EBR was written in 1997, and implemented in 1998 by John Green who was at the time an ACME employee, and is now an independent contractor still supporting the application. Like most software of this age, it has undergone many changes and faces challenges in any future scenarios. Developed in PowerBuilder, with a Sybase SQL database, the technology is no longer supported by the vendors. The database is now at version 8.0, and the PowerBuilder development tool in use is also several years old. Additionally, some pieces are developed in the no longer current Visual Basic COM technology.

The management team considers the current application to be critical, and high risk.

- Risks of old technology not being supported
- Risk of single resource (John) for support
- It is a core application for ACME as a market differentiator.

Because of this, ACME has committed to developing a new version of EBR in 2019. This will provide:

- ACME can continue to electronically meet the requirements for blast reporting mandated in the industry
- ACME creates an opportunity to sell more products and demand a premium price because of the superior capabilities provided by bundled software.
- Because the software is central to the process of blasting service, ACME has the opportunity to examine that process and improve it as part of the project's design and implementation.
- A solution that provides for both connected and disconnected access is possible
- Greater integration with the environment at ACME can be achieved. Improvements in sharing data with internal users, systems (QlikView, Notes, ERP, etc.), and external users (customers, etc.) will provide for better use of information, and potentially more dedicated ("sticky") customers.
- Will allow revisiting and enforcing new standards. These standards, consistent with ACME policies will also be consistent with training to reduce new employee ramp-up costs.
- Allows for new data delivered via a customer portal, to improve customer access and satisfaction
- Initial application would be in English, but open architecture would allow other languages to follow, creating new potential markets.
- Add video creation and management tools to integrate video with blast reports and records

1.2 Proposed Solution

1.2.1 Business Goals

The business goals are as follows:

1. Replace the current systems with one that uses up to date technology
2. Bring development in house so long term reliance on external resources is limited and manageable
3. Expand the base of resources that could work on it by using standard technology
4. Replace the current functionality keeping in mind potential growth for new business needs in the future.
5. Improve the speed of future enhancement cycles through the use of modern tools
6. Provide data to other internal systems for seamless integration, as well as externally to improve customer satisfaction

1.2.2 High Level Functional Requirements

The major functions of this application will be:

- Collect information on blasts as required for government reporting. This may include any or all of the following:
    - Header - Basic customer and job info
    - Environment - weather info, GPS. Nearest protected structure
    - Seismograph
    - Crew
    - Resources
    - Products - Can select previously used products
    - Layout – Number of holes
    - Blast-Hole - Shows hole depth as diagram, and takes products to be used in hole, and calculates the needed safety levels and warns users if wrong.
    - Diagram- Diagram of holes and what products are in use. Allow full drawing editor for user to design area; drag holes around diagram to show placements.
    - Weights
    - Comments - General comments
- Provide reporting and details to allow planning subsequent/future blasts
- Reports
    - Blast Analysis Report
    - Blast Cost Report
    - Other:
        - Reports may vary by domicile (e.g. state) the blast is completed within
        - Generate PDFs and allow integration with email for easy distribution
- Integration with blasting specific hardware and software
    - Logger
    - Blast Machine
- Integration with internal systems at ACME
    - Lotus Notes for email and contact access
    - QlikView for reporting
    - ERP (M4)
    - QED
- Integration with other Equipment or services
    - Video Recording device

  - GPS data or hardware (?)
  - Mapping software (?)
- Access
  - Must be capable of being run at a blast site with no connectivity to any other device
- Platform:
  - Microsoft Windows based laptop PCs
  - Microsoft development tools (Visual Studio.Net)
  - Microsoft SQL Server database
  - Internet connectivity periodically for data replication
  - Integrated Spell Checker
  - Integrated Error Handling and reporting
  - Secure: Must authenticate user and encrypt all data stored on remote machines
- Other
  - Training for key users (train the trainer)
  - Documentation
    - User
    - Technical (auto generate where possible)

1.2.3 Consideration of Commercial Off The Shelf Software (COTS)

We reviewed the existing market for software that may fill the required needs, but found none.

1.2.4 Proposed software development

The proposed software development will consist of a rewrite of the existing application with any identified additions or deletions of functionality. To ensure that the software meets the needs of ACME Corp, while mitigating the risk, we recommend the following approach.

1. Step 1: Business and Functional Requirements
   a. This phase will focus on developing a list of the needed functionality, along with a general structure for the new application. The focus will be on:
      i. Identification of Minimum Requirements and potential (nice to have) requirements
   b. Activities that may be engaged in include:
      i. Business requirements in text or use-case diagrams. User roles required data elements, valid data samples, calculation formulas, etc. will be generated to allow review and sign off.
      ii. Review of the existing application for a function matrix and obtaining formulas
      iii. Meetings to design, discuss, and review
      iv. Sample user interface designs to evaluate and select the look and feel of the application
      v. Plan next steps
   c. Deliverables include:
      i. Word Documents
      ii. Project plans
      iii. Budget
2. Step 2: Technical Requirements
   a. This phase will focus on the development of a technical architecture, including the needed pieces and parts to meet the approved business requirements.
   b. Activities that may be engaged in include:
      i. Database Design
      ii. Class Design

iii. Security Design
iv. Selection of underlying technology components
v. Meetings to design, discuss, and review
vi. Plan next steps

c. Deliverables include:
i. Word Documents
1. Security
2. Architecture
3. Form List
ii. Class and Database Designs
iii. Necessary UI elements (CSS, Forms list, etc.)
iv. Technology Platform list (tools, etc.)
v. Test Plans (optional at this stage, depending on methodology)
vi. Project plans

3. Step 3: Development
a. This phase will focus on the development of the components in accordance with the technical design.
b. Activities that may be engaged in include:
i. Coding
ii. Testing
1. Unit
2. System
3. Security
4. Performance
iii. User Review
iv. Platform build
1. For Development and test
2. For Production
v. Meetings to design, discuss, and review
vi. Plan next steps
c. Deliverables include:
i. Code Modules
ii. Database
iii. Installation Package
iv. Deployment Plan
v. Rollback plan
vi. Training Plan
vii. Updated Project plans
4. Step 4: Alpha and Beta Testing
a. Full System testing by selected users
5. Step 5: Deployment
a. Execute Deployment plan, and if needed rollback plan

It should be noted that this cycle can be run multiple times concurrently, so that many smaller projects are defined and executed. This may follow a major module development or may leave off certain functionality for a later phase.

This also assumes a traditional, outsourced project. An agile or Test-Driven project may be shorter and less costly, but would be structured differently.

2. Expected Costs & Timeline

2.1 Costs

Because the solution is being developed to meet specific needs of ACME Corp, a team will need to work approximately 250-350 man hours to complete the first step and finish the finish the requirements and functional design. This will provide a higher confidence estimate for the technical design and build phases. We recommend pairing a BizTechSherpa consultant with an ACME Corp employed resource for this step. This will allow for best practices to be employed, while meeting the business objectives of ACME Corp to have an FTE on the project. It will also reduce the calendar time so that better planning can be done earlier. No travel is expected for this project.

Future steps for technical design and development may also employ consultants at an appropriate rate. This will be determined when those steps are planned.

ACME will need to provide the server hardware with operating system and a SQL Server database, with all support software (anti-virus, backup, systems management, etc.) per ACME guidelines. Without an understanding of hardware availability or ACME's licensing terms for software, we would estimate $20,000 for this requirement.

A summary of the investment:

Consulting	$18,125-$25,375
Travel	$0
Hardware/Software licenses (1)	20,000

Total Potential Investment (step 1 and hardware/software only): $48,125 - $55,375

Notes:

(1) Assumes that development tools and a development environment is procured and created, along with a test and production environment

2.2 Personnel Assigned

The following personnel will be involved with the project:

Role	Team Member	Responsibilities
Project Sponsor/ Business Owner	Robert White	Provide decision-making support for key requirements Provide direction for effort, ensuring that it meets organizational/participant objectives Responsible for completion of business requirements Provide resources and subject matter experts for UAT development and execution Review and sign-off on deliverables
Project Manager	TBD	Ensure completion of project and deliverables are within schedule and budget Remove barriers to effective project team operation Communicate with the Business and Technology on general status and escalation of issues

		Responsible for all team deliverables and implementation of the project Serve as overall coordinator and point of contact for project (business & IS) Provide daily project management of the project and manage all deliverables, and escalate issues as needed Develop and maintain project documentation including scope, plans, issues, process flows, status reports, etc.
Technical Content Expert	John Green	Provide content expertise for requirements Provide information on existing application's data structure for migration Write export routines for data migration as needed Review and clarify all requirements
Business Lead	Sara Yellow	Represent the business interests on the project team Responsible for contributing to the completion of business requirements Provide resources and subject matter experts for UAT development and execution Review and sign-off on deliverables
Business Subject Matter Experts	Jean Orange Bill Brown	Represent the business and participant interests on the project team Responsible for completion of business requirements Review and sign-off on deliverables
Technical Lead	Steve Red	Serve as IS day to day coordinator and point of contact for project. Responsible for all IS team deliverables and implementation of the project Ensure production environment is set up Represent IS Technology in requirements building Ensure all development standards
User Acceptance Testing	Sally Blue	Review application against business requirements and do final signoff.

2.3 Time Line

Event/Milestone	End Date
Kickoff Meeting	Jan 1, 2019
Business Requirements and Functional Design Completed	Mar 31, 2019
Technical Design Completed	April 30, 2019
QA & Dev Setup	May 15, 2019
Initial Development Completed	July 31, 2019
System Test / QA	August 31, 2019
User Acceptance Testing	September 15, 2019
Deployment	September 30, 2019

3. Risks & Mitigation

Known Risks and suggested mitigations are as follows.

Risk	Mitigation
John Green is unavailable	Ensure contract is in place and John's functions and role are determined in advance. Include John in all stages of project planning and scheduling.
Current System has failure	John Green is retained for support, and no changes to underlying operating systems are planned during the project timeline.

4. Recommendation

We recommend that we proceed with the project and timeline proposed, after review and sign-off by the necessary ACME parties.