BIOGRAPHICAL INFORMATION

Mary Ann Stewart, P.E.
Principal
Mary Ann Stewart Engineering LLC

Specific Responsibilities

Ms. Stewart formed her company in 2002 to provide business development, research and analysis services to the GIS community. She has extensive experience in developing a broader client base for a small photogrammetry firm with a DoD background. This experience provided the initial ideas for this vendor ROI presentation, and has also included placing the firm on the GSA Schedule, developing teaming efforts with aerial services firms, and marketing to Federal clients. Ms. Stewart's other business activities include: market research concerning SCADA control systems for water and electric utilities, marketing activities for an IT services consortium specializing in security issues, and participation in GITA research such as the ROI/Business Case project.

Past Experience

Before forming a small business, Ms. Stewart was manager of data acquisition for a gas and electric utility company, UtiliCorp/Aquila. She managed all aspects of a $1.5 million data conversation project. She also participated in GIS activities related to mergers and acquisitions, integration with work management and customer information services, data modeling, staff training, QC of data, RFPs and contracts. She also worked with Aquila Merchant Services, which was engaged in the development of gas turbine power plants.

Ms. Stewart began working in the GIS arena upon joining the US Environmental Protection Agency's Air Headquarters office in 1990. She worked in environmental GIS, primarily in 3D GIS and scientific visualization displays associated with air dispersion modeling. She created a GIS and visualization group for a major research organization, where activities grew to include groundwater modeling, environmental assessments, and transportation GIS work. She also worked on a National Science Foundation project to develop GIS and visualization capabilities for natural history museums.

Educational Information

Partial M.S. – Water Treatment Engineering, University of North Carolina
B.S. – Civil Engineering, University of Kansas
B.A – English, University of Kansas

Professional Memberships

GITA, program committee principal for national conference
IEEE, local and national
Registered professional engineer in Kansas

BIOGRAPHICAL INFORMATION

Karen M. Smith
Account Executive
Byers Engineering Company
Spatial*Age* Solutions

Specific Responsibilities

Joined company in 1983 and have worked in administration, marketing, and sales capacities. Currently promote Byers SpatialAge software, consulting, and data services to telecom and energy companies. Primary responsibilities include qualifying prospects and generating interest in Byers GIS solutions including Engineering Work Order System (EWO), Map Viewer, and next generation, web-based software tools for universal access of GIS data. Document requirements, statement of work, and produce unsolicited proposals including supporting business case/ROI documentation. Responsible for collaboration between Byers Spatial*Age* and value added resellers (VAR's).

Past Experience

1992 to 1994 Southeast Region Senior Sales Representative for Etak (currently TeleAtlas). Primary responsibilities include selling electronic mapping software and data services to the automobile vehicle location, GIS, logistics, telecommunications, and energy markets in the Southeast. Responsible for closing two value added reseller accounts per year. Responsible for negotiating contracts with customers--mediating between clients and internal lawyer to ensure intellectual property protection of digital map data.

Educational Information

B.S. Human Resources, Administration, Mercer University Atlanta

Professional Memberships

GITA
USTA (United States Telecom Association)

Best Practices--Making the Business Case for Vendors

Mary Ann Stewart, Mary Ann Stewart Engineering LLC
Karen Smith, Byers SpatialAge Solutions

Abstract:
The two presenters represent the vendor side of business case issues—one from software and data integration for telecommunications clients and one from consulting to businesses desiring to enlarge the scope of their GIS services. We share a common desire to create innovative solutions to vendor business issues and will address three general topics: measuring return on investment of marketing efforts; creating business cases for clients; and joint business case development with technology business partners.

Learning Objectives:

1) Learn why vendors need business case and ROI analysis skills.

2) Learn how to use these skills in working with clients.

3) Learn how the skills can help work with other vendors.

Introduction

Planning, setting direction, and analyzing results is a critical, but often difficult, component of running a technology-based business. The origin of this paper is in a predicament often observed while providing business development services to technology-based firms. Common business school wisdom would have a business engage in strategic planning efforts in order to clarify one's place in the market, set goals and measure results. Managers on the front lines of small businesses frequently provide a counterproposal—that their course cannot be perfectly plotted because no strategic plan can accurately predict what will actually work, how the ultimate decision to buy a product or service will be made, what new turmoil in the market will throw a business off its original course.

Many wise old hands declare that they rely more on knowing which way the wind is blowing than on complex strategic planning. Is it possible to skillfully combine knowledge from the trenches with analytical capability? Return on Investment (ROI) methodology addresses the issue of unknown outcomes with increasingly sophisticated uncertainty analysis. Analysts point out that without metrics, there is no way to prove that our efforts at generating business, furthermore generating profitable business, are successful. Recommending one correct approach to analysis for all technology-based companies is clearly impossibly. Therefore the goal of this presentation is to provide a better understanding of how business case metrics can help the vendor community.

Calculating ROI for Marketing Efforts

Given that GIS enables enterprise-wide analysis and decision support systems, it seems reasonable for proponents to employ these systems to assist in their own business efforts. Traditional IT ROI studies as well as GIS-specific studies provide ideas for use of ROI metrics regarding marketing efforts. For example, many organizations categorize staff hours as billable vs. nonbillable without making a study of the effectiveness of the nonbillable hours. In many technology enterprises, marketing activities are undertaken by a diverse array of staff, only some of whom are directly responsible for the marketing effort. Developing metrics concerning the activities of the staff as they relate to customers and potential customers may prove a useful opportunity to understand a company's process of bringing in new customers and analyzing the effectiveness of that process.

With traditional cost/benefit analysis, a project should only be allowed to proceed if benefits exceed costs. Further, a good analysis would show various strategies and allow for selection of the one showing highest benefit:cost ratio. This could be done in a proposal-producing environment. For each effort, one could estimate the cost to prepare the proposal or bid and estimate the benefits if the work is obtained. Many organizations apply a weighting metric according to probability of winning the bid. It should be noted that use of the weighting metric can result in an extremely political decision making process, particularly in larger and complex organizations. Many organizations overlook analyzing these metrics at the completion of the bid cycle, resulting in an incomplete analysis of the proposal efforts. There should be an annual summary process providing analysis of all proposal/bid efforts and it should include an analysis of the profitability of work performed.

How can you tie a particular benefit (work brought in to the organization) to a set of costs? One method involves tracking time, resources expended in a specific effort to get work. The issue of intangibles appears very early in such an analysis. It is easy to overlook marketing and proposal writing costs, including opportunity costs (what else could have been done with the time and money expended on a specific proposal).

Principles from good GIS implementations can be applied to an internal ROI analysis. Research shows that projects with data sharing throughout an organization via common systems yield a whopping 4:1 benefit to cost ratio. Consider the case of a major data sharing redesign within the vendor organization. Mitre Corp. has conducted a post-implementation audit of hard and soft financial benefits of its redesigned corporate information infrastructure which may prove useful to organizations contemplating such an effort (see CIO Magazine, May, 2000).

A system for calculation of ROI of marketing efforts could provide the following capabilities:

- Internal tracking system for bid efforts
- Organization of proposal material
- Tracking prospects throughout an organization
- Market research (internal and external)
- Strategic planning – plan and track direction

Embedded within a system for calculating ROI of marketing efforts is an entire cost benefit study unto itself. The system may provide benefits within the broad category of IT benefits:

- Cost reductions – staff time savings
- Cost avoidances – reduce outsourcing efforts, reduce unprofitable travel expenses
- Increased revenue – easy to measure in general, somewhat harder to tie to specific efforts

The system may also provide benefits within the category of GIS system benefits:

- Reducing the potential for maladministration and liability
- More rigorous data management
- Enhanced visualization of graphical data (for presentations and proposals)
- Improved analytical procedures
- Improved data security
- Provision of better information
- More consistent access to data
- Improved services to customers
- Ability to integrate data
- Ability to synthesize new concepts from data

The ROI calculation system may provide intangible benefits:

- Improved decision making
- Decreasing uncertainty
- Improving corporate or organizational image
- Assist in moving into an area of work for strategic purposes.

Costs of marketing efforts and tracking will be similar to general IT efforts:

- Undertaking requirements/needs analysis
- Systems customization
- Interfacing to other data servers and operational systems
- Training, human resources planning, skills development

- Business analysis
- Project management
- Communications
- Business process reengineering
- Documentation redesign

New capabilities developed as part of a marketing effort may be initially seen as intangible. Once these capabilities bring in work, they have become tangible. What is a good accounting system for dealing with this change?

It may be wrong to look at the ROI analysis problem as a matter of predicting static, simple quantities. Change in the technology industry is constant. The ability to expand/modify the tracking system easily without major structural change may be a hidden benefit, allowing the company to imagine and collect new metrics regarding business practices as ideas unfold.

Creating Business Cases for Clients

The tight economy means slowed spending and an ROI business case must be in place before any purchase is made. The sales representative may say to himself 'This is not my job.' However, when his client selects his solution but fails at selling it up through the organization, the sales representative quickly changes his mind. The days of the lazy sales rep are over.

It is now imperative for companies to provide pro-forma business case ROI studies as part of the sales process. Vendor representatives have guidelines, checklists, and templates and can work with their clients to target potential activity areas that result in productivity improvements, cost reduction, or increased revenue. Sales people are great at finding the 'supporter' within the organization who truly wants to produce a winning business case and who has access to the decision makers and information required to do so. This tedious process is a win-win situation when the vendor can present practical solutions that the client needs, and the costs are justified by the benefits delivered.

Generally, the client will have some idea about 'killer apps' or activities that will solve a problem or help meet the crucial business drivers. How do these applications rank against competing strategic initiatives? The first step is to discuss and identify current problems, opportunities, and areas of interest. A Benefits Summary template can be used that describes the purpose and benefit of each activity or application along with a basic, corresponding proposition.

Benefits Summary Template Example

Benefit and Purpose	Basic Proposition	Telecom Feedback/Notes
Auto Update of Assignment System Eliminate re-key of terminal and count data. Provide more real time pair data to engineering and the field.	Have GIS "post" count changes, new and deleted terminals to Assignment. Have GIS produce cut sheets.	*Need to configure API handshake to Assignment*
Continuing Property Records (CPR) Perform CPR adjustments. Provide Tax Reporting by area.	Use current network model or warehouse with current geo-political boundaries to report taxable facilities as CPR reporting. Generate tax reports, eliminate redundant and inaccurate data models, immediate and automatic tax coding correction for facilities. Eliminate cost of CPR model maintenance and update.	*See Materials Management—could kick off from work order creation and as-builts as reported.*
Circuit Qualification Tool Prequalify circuits to provision advanced services thus improving customer service, marketing support, maintenance, and overall copper network utilization.	CQT is a server-based program that uses information from the GIS database in correlation with the line-assignment system to test potential serving terminals and identify each location that qualifies for advanced services, such as digital subscriber line (DSL).	*DSL Qualification—manually perform circuit trace on every circuit—currently use assignment system but need link between mapping system.*
Fiber Management/Restoration Tool Reduce overall operating costs, improve response time, minimize revenue loss, and reduce outage costs and penalties.	Have technicians report OTDR readings to repair, generate repair work package, provide location and restore order to repair crew. Get repair data back to system. Perform "back in service" test. The application provides cross wire center connectivity from central office to central office regardless of serving area boundaries.	Customer information and copper circuits are maintained in OSP assignment system and C.O. equipment, special circuits, and inventory in optical circuit provisioning system. Patch panel data and miscellaneous notes contained in spreadsheets and CAD drawings, and SLA's are not well organized. Intelligent landbase will be helpful to locate by street intersections and addresses.

See examples in work sheet above and other examples are market penetration, web-enabled access, asset recovery and trouble management, data sharing and on-line collaboration, and mobile access, and so on. The representative can interview and discuss these activities with the client to determine which ones are significant. These activities can be added to the 'benefits' section of the ROI/business case. In addition, the company Mission Statement and recent press documents can be analyzed to build upon solutions that meet upper management goals and objectives.

The most current annual report provides revenues and expenses from which to build the metrics in the ROI calculations. However, companies may want to build the ROI based on specific budgets/expenses from divisions or departments within the organization. As these areas are explored, the vendor can probe for metrics including company plant statistics, the number of employees in major job functions, and correlating labor rates. Blended labor rates may be preferred for a pro forma model to keep it straightforward. Other information to obtain includes statistics related to job tasks performed during a period of time, e.g., number of work orders per year. These activities will prove to be opportunities for time savings as a result of automation or improved work flow. Additionally, expenses from proposals or estimates will be added to correlate costs to benefits. For example, data migration or conversion costs can be included for analyzing the benefits to upgrade a system. Finally, determine the desired implementation time frame.

ROI Spreadsheet (Metrics Section) Example

	Staff	Source
3,000	Total Employees	TELCO web site
175	Number of OSP Engineers	Interview w/Client
29	Number of Planning Engineers	Interview w/Client
53	CAD/Posting Personnel	Interview w/Client
2,000	Number of Field Techs	Interview w/Client
40	Number of Transport Engineers	Based on comparable sized telco.
12	Number of NOC Techs	Based on comparable sized telco.
4	Average Restoration Crew Size	Based on comparable sized telco.
	Rates	
$58	Loaded Labor Cost Engineers	Blended labor rates
$168	Loaded Labor Cost for Truck Roll	Data from leading GIS consulting firm.
	TELCO Stats	
5,379,200,000	TELCO Total Annual Revenues	2003 Annual Report from co. website
2,436,100,000	TELCO Wireline Revenues	2003 Annual Report from co. website
135,000,000	TELCO AXN Revenues	Based on average calls $.04/min
1,552,200,000	TELCO Wireline Expenses	2003 Annual Report from co. website
170,742,000	Estimated I.T. Expenses	Based on Byers ILEC customer.
3,200,000	Number of Subscribers/Access Lines	TELCO Statistics from Client 2003

Many of these activities will affect more than one department. Considerations include customers, processes, people, other resources, technologies, and suppliers. Clients can realize larger savings by coordinating between departments when implementing new processes. Thus it is a good idea to gain support from an individual within the client organization who has access and influence to decision makers in other departments. Challenges may involve politics and turf battles. The individual selling the business plan puts his job on the line—so the business case must present a compelling, factual account of why the business is worth considering—including costs and risks. Then it must prove that it did what it actually said it would on time and within budget.

It is also important to identify the soft and indirect benefits. For example, good information about whether customers can get new services (e.g., high speed data connection) can be perceived as a 'soft benefit' without considering the revenue generated. In contrast, poor customer service can mean the loss of a customer—jeopardizing a company's reputation can be a risk much greater than lost revenues.

Fundamental principals in implementing a business case include: business objective accountability, adhering to corporate standards and yet remaining open and flexible for the next generation technology.

The business case/ROI should result in a document containing:

- Scope—problem statement and critical business objectives
- Statistics
- Costs
- Risks
- Returns
- Business Case Benefits Summary
- ROI Benefits Spreadsheet
- Supporting Documentation (quotes or proposals, annual report or other revenue/expense documents)
- Best practices model

ROI Spreadsheet (Bottom Line ROI Section) Example

	Year		
	1	2	3
Initial Software Investment			
Annual Maintenance Cost			
Migration Cost			
Sourcing			
Data Cleanup			
Landbase			
Server Costs			
Deployment/Support Costs			
Annual Benefit			
Cash Flow			
ROI			
Discount Factor 10%			

Discounted Return On Investment (ROI)
Pay Back Breakeven Point (In Months)
Internal Rate of Return (IRR)

To build a basic pro-forma business case/ROI, you must accumulate metrics for company statistics, labor rates, revenue and expenses, job task information, and potential benefit areas. The ROI template above illustrates the section for calculating ROI based on costs, breakeven point, and internal rate of return. When all of this data is entered into a spreadsheet, the vendor can present 'what if' scenarios with his client based on those 'killer apps.'

Vendors Could Often Benefit from Joint Business Cases

Changes in the marketplace are resulting in new perspectives from both the Vendor and Client community. Companies that have survived the pitfalls of the recent economy are reinventing the way they do business with their customers and competitors. Vendors are actually benefiting by working together.

By providing a collaborative approach to business case/ROI, vendors can provide a broader range of solutions required by the client. Executives are requiring a solid business case to buy-off on new technology or improved processes. In many cases, one vendor is capable of developing and implementing several or even many of the activities identified by the vendor. However, there are always significant benefit areas identified by the client that one vendor is not qualified to deliver on its own. By working in partnership, two or more vendors can provide an integrated solution by utilizing complimentary resources and expertise.

However, there are many challenges faced in collaboration. First, only one company will take the lead, the greater risk, and perform the project management role. The vendors must agree upon a joint strategy for managing the account up front. They may have potential conflicts of interest and it is much cleaner to clearly define the nature of each participant's responsibility in the project early on. The following areas must be addressed:

- Account Management—Determine prime company/contact
- Client Interview/Presentation
- Scope/Executive Overview (What does the client want?)
- Benefits Summary (Purpose and basic proposition)
- Assignment of Responsibilities (Accountability)
- Cost Estimates for Activities and Applications
- Business Case/ROI Spreadsheet ('What if?' scenarios)
- Implementation Plan (Milestones and Schedule)

When the challenge is met, vendors can cooperate to provide better value, a competitive price, and on-time deliveries.

Conclusion

Whether using a business case for internal analysis, marketing, as a sales tool, or for joint business opportunities, companies must understand the key business drivers. Direct, indirect, and soft benefits can be achieved by changing 'business as usual.' Direct benefits include specific means to measure costs, productivity, and resource savings. Soft benefits can include better customer satisfaction or improved internal communication. There are numerous indirect benefits such as reduced call times for service or faster time to market. It is imperative to take into account the indirect and soft benefits as critical to the overall business plan.

These scenarios help to build a clever story capable of selling the main message. The business case must be accurate yet practical and simple enough to complete, present, and understand in a reasonable time frame. The report may not be perfect but it provides credible talking points to begin the negotiation process. Don't miss that window of opportunity.