



THE BUSINESS BENEFITS OF GIS: AN ROI APPROACH

THE SECOND ON JIM BAUMANN'S
'THOUGHT LEADER' INTERVIEW SERIES
MEETS ESRI'S DAVID MAGUIRE



David Maguire is ESRI's chief scientist and director of international activities. He has extensive experience in implementing geographic information system (GIS) solutions around the world and has authored more than 100 articles and 8 books on GIS.

Baumann: What was your original motivation for writing *The Business Benefits of GIS: An ROI Approach*?

Maguire: Although executives are always faced with pressure to justify their expenditures, in recent years, given the high-profile economic and accounting offenses, there have been increasing demands, both globally and locally, to improve business efficiencies, competitive advantage, and resource utilization. In contrast to the technology of GIS, the business-based return on investment (ROI) aspects are much less developed. That is, we found that there are very few examples of the measurable business benefits of GIS projects and no standardized technique for estimating the value or return on investment of using GIS within organizations.

Furthermore, we recognized that many executives are struggling to

- Build consensus across their organization to allow enterprise views to emerge rather than traditional silo views.
- Secure an appropriate share of GIS-related budget in a competitive IT-budget environment.
- Provide the real value of a GIS-related investment in financial and/or quantitative terms.



The ROI process

- Prioritize investment in GIS-related technologies based on the value delivered to the business.
- Successfully and consistently deliver on expected business benefits in order to enable a sustainable track record to justify continued investment in GIS.

As a result, executives are seeking more sophisticated approaches to prioritizing and targeting investment in GIS technology, proving how and when that investment will deliver tangible ROI to their organization.

In response, Victoria Kouyoumjian, Ross Smith, and I embarked on writing the book as a means to put our know-how, toolsets, and insights into the hands of our customers to overcome these challenges.

Baumann: What were some of the greatest challenges in writing the book?

Maguire: The greatest challenge was building the methodology and associated tools and templates that can be used to create a manageable and comprehensive process for measuring the return on investment of an existing or future GIS program. The original methodology was developed by Ross and his colleagues at PA Consultants, and we adapted it so that it could be applied by GIS professionals. Because the methodology is targeted at GIS professionals who may have limited experience with business analysis and management science, we had to start from basic principles and ensure that concepts were delivered by way of examples and a representative case study.

Baumann: What is the significance in applying ROI principles to GIS implementations?

Maguire: First, it is important to understand that ROI calculations are only one piece of the complete process. Calculating ROI for a GIS program is one aspect, but delivering on the benefits expected in a consistent and complete manner is equally important.

Organizations must be able to

- Link the business benefits sought via the GIS initiatives to the organization’s strategic goals and objectives.
- Build a community of GIS advocates across the business, moving beyond a single department and into the enterprise.
- Ensure the program is business led and not just technology driven.

- Consistently deliver benefits through a well-structured and well-governed program that has at its core the notion of delivering value, not applications.

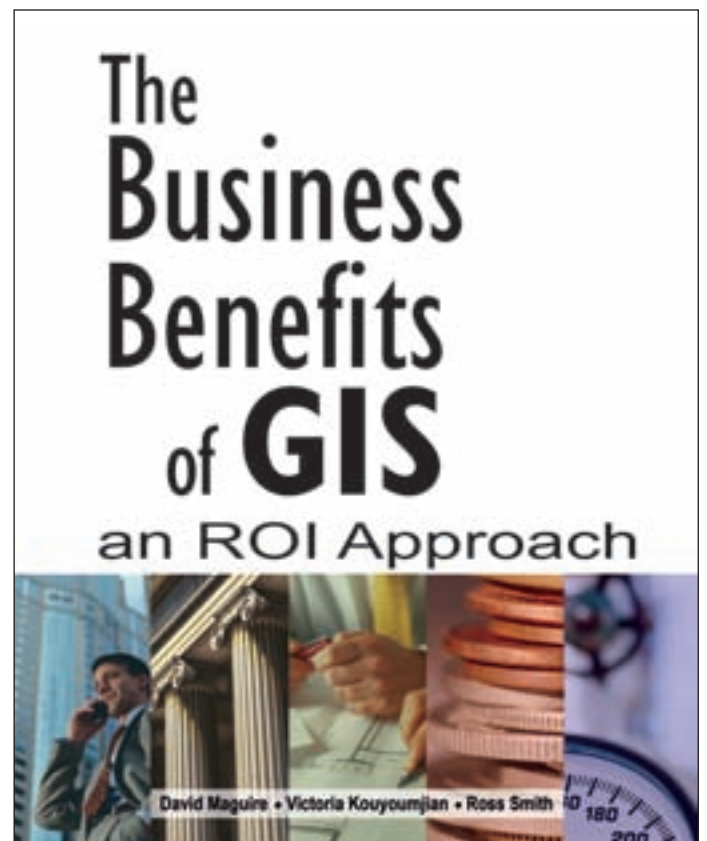
The methodology focuses on six key topics that we believe are critical to creating a strong GIS business case or strategy for any organization: demonstrate the real business value, determine the specific costs, estimate the time frame for delivery of benefits, understand the resource requirements, define the governance and management, and calculate the return on investment.

The methodology seeks to address the primary questions generally asked by senior executives when confronted with a request for funding projects of this nature:

- Why invest, or reinvest, in GIS technology? What value will this investment have for our organization?
- When will the benefits be delivered? Will it be this quarter? Within the next two years?
- Who will be the recipients of the benefits?
- What is the level of investment needed, both initially and on an ongoing operational basis?
- Who is going to deliver these benefits, and what resources are required—both internally and externally—to realize the benefits that are expected?
- What is the proven financial case; that is, does the investment in GIS provide the financial or other value to make it worthwhile?

Baumann: How do you see the book being used?

Maguire: GIS practitioners (managers, business architects, systems analysts, etc.) will use the material in the book in conjunction with the supporting Web site (<http://gis.esri.com/roi>), which provides access to all the tools and templates to identify business benefits relevant to their organization, plan a series of coordinated GIS-related projects, create a defensible capital and operational budget, quantify the business benefits in real terms, and calculate the return on investment of GIS projects. The 10-step process leads people through the whole program from first idea to a complete, compelling report that can be presented to a review committee or funding body.



Although written as an end-to-end process, we also anticipate that organizations will use only portions of the methodology. For example, some may use the approach to create a robust budget or to model benefits they expect to be delivered by their ongoing work. The approach is structured so that it can be used in whole or in part, as required by the reader.

Baumann: Please discuss the 10-step program that comprises the ROI methodology.

Maguire: The book begins with an overview of the approach taken to measuring business value. It outlines a 10-step methodology and describes the structure of the book. It also introduces the case study that runs throughout every chapter of the book. The case study describes a fictitious municipality that was invented to cover a range of commercial, environmental, governmental, and utility business issues. Each of the next 10 chapters uses a common organizing frame for discussing the ROI methodology steps. Each chapter begins with a definition of key terms and a discussion of the fundamental topics. The tasks for each specific step are then described, using examples to illustrate what is required of the reader. The tasks essentially involve creating a series of completed documents based on the digital templates that we provide. To best demonstrate the tasks, the latter portion of each chapter is dedicated to applying the methodology within the context of the municipality case study. Each chapter concludes with a brief discussion summarizing the salient points and objectives of that chapter.

The interrelated steps are designed to be performed by a GIS professional supported by a small project team. The methodology begins with a series of *planning* and *investigation* activities such as interviewing key stakeholders to isolate pain points and aggregating their challenges into potential business opportunities.

The next group of steps is concerned with *GIS program definition*. Building from the previous results, a program of GIS projects is defined with the appropriate and requisite governance and management determined.

The *business analysis phase* comprises a series of steps where the defined GIS projects are broken down into constituent parts and the resource costs are determined, from which estimated benefits are detailed.

A road map is created that visualizes when the benefits will be realized by an organization. Finally, ROI is calculated using a comprehensive template provided to quantitatively demonstrate the value of GIS to an organization.

Since the business analysis stage is often

the most challenging, many templates and spreadsheets are provided to determine costs, model benefits, and calculate the ROI.

The last step encompasses the final account of an ROI study, crafting a compelling report by aggregating the information and research already completed.

The report will concisely show how GIS can contribute value to an organization including its cost, benefits, time to implement, resources required, governance, and the return on investment the organization will realize.

Baumann: What is the most challenging step or group of steps in this process?

Maguire: The most difficult challenge typically faced by GIS professionals is gaining the stakeholder commitment and buy-in across the whole organization. GIS in the past has been seen as a departmental tool, not an enterprise-grade solution (such as SAP), so they face the challenge of getting others onboard in a meaningful way. In terms of the methodology itself, the most challenging step for most GIS professionals is estimating the benefits of GIS projects. There are many benefits of using GIS in virtually all types of organizations. Some benefits are tangible and can be assigned a monetary value, while others are soft or intangible and are difficult to measure. The focus here is primarily on tangible benefits. Estimating the benefits of a GIS program is a little more difficult than specifying the costs—not so much in identifying the benefits but in translating the benefits into specific, measurable terms that can be ascribed a monetary value. The benefits estimation process focuses on things such as the value added with GIS, costs avoided, additional revenue made, and improvements in efficiency. The process of defining a benefit is broken down into a series of smaller constituent parts to aid in modeling activities so that they can be expressed in a measurable form. The data is then entered into a spreadsheet to provide yearly totals.

Baumann: How long does the entire process normally take?

Maguire: Experience has shown that this methodology can be completed in about four weeks of continuous effort, but it is expected that the process will typically move forward at an uneven pace, with breaks between the steps so that all participants in the process can continue with other duties and priorities. These intermissions are also beneficial in that they allow time for consolidation of information and reflection on what has been achieved before a move to the next stage. A good approach is to work continuously on each group of steps, pausing after each completed group.

It is usual, therefore, for the whole process to take anywhere from four weeks of continuous effort to twelve weeks, averaging two person-days per week.

We expect that most organizations will seek to use this approach several months ahead of their annual budgeting cycles so that they are well positioned to submit a robust and defensible business case or budget.

Baumann: What's different about this approach from traditional methods?

Maguire: Traditionally, GIS projects have been evaluated mainly by the additional technical capability that they provide to an organization. Today, executives are increasingly concerned with doing more with less and need a way to evaluate and compare all potential business opportunities. This approach is different from traditional methods for measuring the success of GIS projects because it is benefits led, top-down instead of bottom-up, and focused on value rather than activities and considers not just ROI but also all the components required to successfully deliver the full value to an organization.

The Business Benefits of GIS: An ROI Approach will be available August 2008. ISBN: 9781589482005, 200 pp., \$99.95. To order this title or other books from ESRI Press, visit www.esri.com/esripress.

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