



COST BENEFIT ANALYSIS

Enterprise Asset Management Solution



How to Perform a Cost-Benefit Analysis for Geospatial Analytics Inspection InSite™ and Geospatial Analytics Asset InSite™

This document describes ways to perform a cost-benefit analysis of your organization's investment in the following:

- Geospatial Analytics Inspection InSite™ — a state-of-the-art mobile application for transforming your manual facility inspection processes
- Geospatial Analytics Asset InSite™ — an industry leading enterprise asset management solution



Estimating Net Benefits from an Automated Inspection Process

Geospatial Analytics Inspection InSite™ is a mobile application that enables you to efficiently create and maintain an inventory of the condition of the assets in your properties. This gathered data resides in the Geospatial Analytics Info InSite™ database for subsequent analysis using Geospatial Analytics Asset InSite™ (or using your existing in-house capabilities).

In the absence of an efficient tool such as Geospatial Analytics Inspection InSite™, the legacy manual inspection process is cumbersome and time-consuming. Data gathered on paper forms must be keyed into a database or spreadsheet manually, and photos need to be relabeled and uploaded. These manual processes are prone to data entry error and inconsistent evaluations by various inspectors across the organization due to a lack of standardization of equipment condition.

Geospatial Analytics Inspection InSite™ can reduce the time your in-house or contract inspectors spend in various ways described below. A cost-benefit analysis for this solution includes:

- Estimating in-house annual labor savings in these various ways (scaled across all of your inspectors and facilities), using assumed loaded labor rates (which can be a blend of inspection, administrative and management rates, as appropriate).
- Subtracting the solution's license costs to determine the net savings.
- Estimating savings in future years and applying a discount rate to determine the net present value of the total savings.



Following are ways you can reduce inspection costs using this powerful solution:

- **Elimination of clipboards and cameras.**

Using a smartphone/tablet-based mobile application, stand-alone cameras are not needed, and paper-based data collection processes (e.g., post-inspection management of hard-copy inspections) can be eliminated.

- **Avoided Manual Data Entry and Photo Uploading.**

Enabling the automated entry of data, photos, and photo labels into a centralized database avoids the intermediate step of manually entering this data after it is collected. To estimate these savings, you can estimate the percentage reduction in the time needed to gather/input the data and photos, compared to the total time spent per inspection.

- **Avoided Data Entry Errors.**

Direct entry of data and photos also eliminates data entry errors. To estimate these savings, you can estimate the percentage reduction in time needed to correct these errors, compared to the total time spent per inspection.

- **More Objective Data.**

Geospatial Analytics Inspection InSite™ provides objective, standardized criteria for a broad range of asset and condition types, enabling consistent input of asset condition across inspectors and facilities. To estimate savings due to this, you can treat subjective data as a form of data entry errors, and hence increase the percentage reduction in time needed to correct these errors, compared to the total time spent per inspection.

- **More Complete Inspection Inventory.**

By prompting facility technicians to inspect a broad range of asset types and common problems with any given asset type, Geospatial Analytics Inspection InSite™ ensures a more complete inspection inventory than is likely during unprompted, manual processes. To estimate this benefit, you can estimate the time spent identifying assets not inspected, identifying asset problems not sufficiently specified, and re-inspecting the inventory, compared to the total time spent per inspection.

You can then extrapolate these four types of savings across the number of inspections, number of inspectors, and number of facilities. Note that if the percentage reductions of these efficiencies sum to only 10 percent, the savings for a company with a large number of inspectors and facilities can be quite large.

For a more detailed analysis, you can categorize major, intermediate, and minor inspections, and assign various hours/inspection and costs to each type to enhance the granularity of the analysis. At an aggregate level, you can also incorporate a fifth type of cost savings. This involves adding total estimated cost savings due to efficient and easy integration of Geospatial Analytics Inspection InSite™ into a wide range of existing computerized maintenance management systems, compared to systems without this seamless integration.

Automated Inspections and Value Creation:

A growing number of companies are discovering the value of using mobile applications to automate their inspection processes. By creating a strategic approach to collecting critical information, facility managers can reduce costs and improve the quality of the information. Many of Geospatial's Analytics® customers have experienced 50% or greater reductions in inspection costs, and some have identified payback periods of just a few months.

Estimating Net Benefits from Improved Decision Making

Geospatial Analytics Asset InSite™ is a data analytics tool that enables you to analyze the data gathered using Geospatial Analytics Inspection InSite™ that resides in the Geospatial Analytics Info InSite™ database (or using your existing in-house capabilities). In the absence of an enterprise asset management solution, the legacy decision making process for assets can be inefficient and inconsistent, and can complicate optimization of total cost of ownership and risk management.

Geospatial Analytics Asset InSite™ provides asset owners and managers with a strategic planning process that aggregates data regarding the condition of assets in your facility portfolio. This provides a better understanding of the condition and costs of your entire enterprise asset portfolio, as opposed to managing it on a facility-by-facility basis.

This powerful tool empowers you to:

- Purchase equipment and parts in bulk at a savings.
- Use a consistent, objective approach to purchasing.
- Optimize your total cost of ownership by optimizing asset repair and replacement.
- Perform asset risk management and capital planning.

The crux of the cost-benefit analysis includes:

- Estimating in-house annual savings using these capabilities either in the aggregate or by asset category.
- Subtracting the cost of the solution's license fee to determine the net savings.
- Estimating savings in future years and applying a discount rate to determine the net present value of the total savings.

Examining each of these capabilities provides ways to perform such a cost-benefit analysis:

- **Enhanced Volume Purchasing.**

Geospatial Analytics Asset InSite™ identifies opportunities for asset owners to consolidate purchasing for all equipment types — purchasing more types of equipment from a single supplier (i.e., supplier rationalization) identification of “should-cost” pricing, and reduction in markups by purchasing directly from the source (instead of purchasing through general contractors or third parties).

- **The tool also enables bundling of projects to obtain volume discounts.**

To calculate these savings, you can estimate the percentage of equipment (by dollars or number of units) that you can reasonably assume can be impacted by supplier rationalization and/or volume discounts, and the assumed percentage of pricing reduction. You can then apply this percentage to the applicable current dollar spend by equipment type, facility, or enterprise-wide.

- **More Objective Purchasing Approach.**

Geospatial Analytics Asset InSite™ enables asset owners to apply a consistent process and standard for making purchasing decisions, as an alternative to ad hoc decision making based on criteria that may not be quantitatively defensible. Constructed using knowledge of the precise condition of all assets using Geospatial Analytics Asset InSite™ enables objective purchasing decision making based on enterprise-wide standards. This eliminates the replacement of assets that are subjectively selected for replacement but have useful remaining life or low risk if they fail prior to replacement.

To calculate these savings, you can estimate the percentage of equipment (by dollars or number of units) that you can reasonably assume will not have to be replaced, along with the assumed percentage of cost reduction. You can then apply this percentage to the applicable current dollar spend by equipment type, facility, or enterprise-wide.

- **Reduced Total Cost of Ownership.**

Geospatial Analytics Asset InSite™ enables asset owners to optimize asset repair versus replace decisions across asset types, individual facilities, and corporate portfolios. By transforming data into business intelligence on asset condition, sophisticated analytics can facilitate significant process improvements. For instance, preventative maintenance can be reduced for newer assets or can be eliminated for assets with very low operational risk. As a result, the tool helps asset owners minimize the total cost of ownership — including acquisition, operation, maintenance, repair, and disposal — of their assets.

To estimate these savings, you can estimate the percentage of maintenance (by dollars or some other measure) that you can reasonably assume can be optimized, along with the assumed percentage of lifecycle cost savings. You can then apply this percentage to the applicable current dollar spend by equipment type, facility, or enterprise-wide.

- **Improved Risk Management.**

Geospatial Analytics Asset InSite™ enables asset owners to perform asset risk management analysis. Risk is the product of probability of an occurrence and the impact of the occurrence. Your risk tolerance is likely to vary from asset type to asset type, and also, from one application of the asset to another. For example, if the probability of failure of a particular type and age of HVAC system is constant, but the impact of this HVAC failure in your data center is much greater than the impact of the HVAC failure in your office or warehouse, then the risk is higher for the data center HVAC system. Therefore with a limited capital budget, you would prioritize replacing the HVAC system serving the data center before replacing the warehouse HVAC system. While the decision in this example is obvious, it is a much more complex exercise when dealing with tens of thousands of assets that support hundreds of different facilities. Sophisticated analytics are needed to evaluate the data and help form an optimized capital budget that maximizes the value creation within limited financial constraints. Geospatial Analytics Asset InSite™ enables you to make these and other critical evaluations based on hard condition data and a risk-informed process.

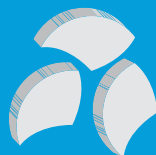
To estimate cost savings due to enhanced risk management, you can select a critical function such as a call center, data center, or critical manufacturing assembly line, and assume that you can avoid an outage of this function for some period of time typical of a critical equipment failure. You can estimate the outage cost of that failure using past cost data you have gathered or by other measures such as loss of sales.

In addition, you can assume that enhanced risk management enables you to repair equipment, rather than replace it, in non-critical functions, or allow an asset to “run to failure,” thus deferring a significant capital outlay for some period of time.

- **Enterprise Asset Management and Value Creation.**

A growing number of asset intensive enterprises are discovering the value of an enterprise asset management program. By creating a strategic approach to maintaining their portfolios, facility managers can reduce cost and risk. Many companies have experienced 3-6% savings to their capital budget within the first year of implementing a program. The program will continue to yield benefit year over year and will be a significant driver of value creation for your organization.

For more ideas on conducting cost-benefit analyses on Inspection InSite™ and Asset InSite™, contact GeoSpatial.



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