# Realizing Enterprise ROI* through Palm™ Solutions Group Mobile Solutions

## White Paper: ROI Case Studies for Palm Solutions Group Mobile Solutions

## Solution Type: Field Force Automation

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*** Return on Investment**

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# Realizing Enterprise ROI through Palm™ Solutions Group Mobile Solutions

## About The Gantry Group, LLC

The Gantry Group is a strategic advisory and custom market intelligence firm. We apply primary market research to help companies cost-effectively accelerate the successful market adoption of their products and services – online and offline. Gantry Group has helped over 165 client companies drive sales, introduce new product concepts, acquire new customers, increase brand equity, and increase customer lifetime value through our market analysis, market validation, and ROI/TCO benchmarking service suites.

Today more than ever, companies are looking for near-term return on investment in this overall budget-constrained climate — and the sooner, the better. Vendors must now use a much more analytical, quantitative approach to selling. Prospective buyers want assurances that an investment will pay for itself over an acceptable time period — either by increasing the top line, decreasing operating expenses, or both.

Gantry Group's *Customer Payback* modeling provides companies with tools to accurately calculate the economic benefit of their offering to customers. This practice relies on customized market research and quantitative financial modeling to develop a credible payback calculator that is based on metrics that are meaningful to a vendor's target market. Cause and effect analysis enables us to determine the tangible value associated with often intangible benefits. Our rigorous methodology results in customized tools for economic payback projections: customer's return on investment (ROI), total cost of ownership (TCO), Net Present Value (NPV), and internal rate of return (IRR). The result is a quantified value proposition that is crisply differentiated within a receptive market.

Gantry Group recognizes that one of the critical components to developing a compelling and accurate payback tool is understanding how an offering impacts the common business metrics that the target market employs to judge its own performance. To gain such insight, we survey the target market to discover the business processes and cost centers that are affected by the implementation of an offering. This, and other data about acceptable levels of return on investment, identify the drivers to the quantitative model and also provide a context for strategic messaging that highlights the tangible, measurable economics of your offering.

Applying these Customer Payback tools, Gantry Group conducts online and in-person studies to consistently profile ROI/TCO across a carefully selected sample of participating companies. Gantry Group has equipped many product and service firms with credible TCO and ROI models that communicate value in the terms of the business metrics that customers and prospects use to access the performance of their own companies.

Our team combines over 60 years of operationing experience with proven strategic planning, research methodology and market intelligence to grapple with the most challenging business goals and problems. Gantry Group complements management teams in technology, financial services, health care and professional services sectors. The company can be reached at 978-371-7557 or www.gantrygroup.com.

## Abstract

Palm™ Solutions Group, the sponsor of this white paper, was formed after Palm™, Inc. separated into two companies in early 2002. Those two companies are Palm Solutions Group, a handheld solutions company and leading manufacturer of handhelds with over 18 million devices shipped to date and PalmSource, developer of the Palm OS® platform and licensor of the platform to makers of handheld devices.

The Palm Solutions Group enterprise initiatives (see www.palm.com/enterprise) are revolutionizing the way business is conducted, projects are managed, and problems are resolved in the field. The exploding mobile solution sector, Field Force Automation, at last brings companies an efficient, accurate and reliable business process between the field and central office. Through mobile solutions, enterprises achieve fluid field force communication, near real-time offsite project status, and prompt field problem response. The net benefit is increased revenues, reduced operations costs, and avoided expenditures. These benefits significantly overshadow the investment in the mobile solution itself – typically recouped in the first months of deployment.

Palm Solutions Group engaged the Gantry Group to conduct an objective ROI study that would quantify the net results of deployed mobile solutions. Gantry Group has developed definitive ROI tools, each customized to specific application categories within major solution sectors This white paper explores experiences with Remote Audit applications within the Field Force Automation sector (Field Force: Remote Audit). Individual case studies profiling specific deployments of such Palm Solutions Group solutions were developed to further illustrate the ROI experience.

Using an interview-based approach with Palm Solutions Group's enterprise customers, the Gantry Group developed a realistic, payback-modeling tool that measures the ROI impact that a Palm Solutions Group mobile solution deployment has on key business metrics and cost drivers for the Field Force: Remote Audit applications. Three companies, representing different industries, contributed to the development of a quantitative tool that measures the costs and benefits associated with the deployment.

Care was taken to identify and parameterize only those tangible costs and benefits that could directly be measured to ensure that the ROI model is conservative and credible. No estimate-based assumptions concerning intangible benefits were included in the model, which was thoroughly cross-checked to ensure against "double-counting" and inclusion of cost savings that were theoretical but not realized.

The companies profiled in this case study, on average, realized actual ROI of 1,000% or more over a three-year time period, with payback occurring in less than two months. These organizations shared a common set of challenges, which drove them to adopt a mobile solution:

- Inconsistent, questionable data quality from the field
- High incidence of audit repeats
- Unreliable process to transport field data to the central office
- Lengthy time-to-completion
- Delays in action and problem resolution

Deployment of Palm Solutions Group mobile solutions for Field Force: Remote Audits resulted in direct, tangible benefits derived from:

- Seamless field data workflow (automated data transmission)
- Improved data quality
- Improved data processing efficiency
- Shortened project cycles

## Field Force Automation: Challenges and Palm™ Solutions Group Mobile Solutions

### Fundamentals

Field Force: Remote Audits are performed across a range of industries. Frequently performed at offsite locations, they serve to track, report, and monitor status. Examples include construction project management, building security and safety assessments, store audits and equipment field repair. This application is characterized by:

**Paper-based data collection** – Data is typically collected manually in the field on paper, mailed or carried back to a corporate office, re-entered into a central database or repository, and then re-validated. These data processing activities typically drive the project completion cycles.

**Project cycles and staff utilization drive revenue** – Revenues are strongly influenced by employee utilization, length of project cycle, and length of sales cycle. Projects requiring financing have an associated interest payment until the project is ultimately completed.

**Data analysis and reporting** – In the absence of access to historical reports and data at the offsite location, diagnosis and repair typically requires follow-on visits to achieve problem resolution. The longer an equipment unit is out of commission in the field, the longer a project remains unfinished, increasing risk and liability costs.

### Challenges

No matter what the specific industry, Field Force: Remote Audits are typically associated with common challenges that drive the costs of this business activity. These include:

**Uncertain, inconsistent data quality from the field** – Data collected by hand, onsite, is often incomplete and inconsistent.

**Audit repeats** – Erroneous data collection from the field requires data re-entry and re-audit.

**Field data transport** – Paper-based data collected in the field must be physically transported to a data entry function that is either in-house or outsourced. This manual process introduces considerable time lag for the central office to have access to the field data.

**Lengthy time-to-completion** – Inefficient data collection results in longer completion times.

**Delays in action** – Inability to access a central database offsite results in delays between accurate diagnosis and actual repair or problem resolution.

### How Palm™ Solutions Group Mobile Solutions Address These Challenges

Field Force: Remote Audit solutions outfit field personnel with handheld devices loaded with an application specifically designed for the work process at hand. These devices enable workers to enter data through a consistent form interface, screened by automatic data validation. Data can be transmitted directly into a corporate repository without re-entry. These solutions can be wireless or synch based depending on the critical nature of the data being collected or received.

**Seamless field data workflow** – Automated electronic transmission of data and information brings the ability to extend entire business processes beyond the confines of the "office", enabling companies workflows to extend reliably and seamlessly between remote sites and corporate offices. Efficiency of the entire business process can be greatly improved, resulting in increased productivity and profitability.

**Improved data quality** – Data quality is significantly improved with mobile handheld solutions that guide data entry, apply data validation, and check rules.

**Improved data processing efficiency** – By eliminating the paper-based workflow, data entry efficiency and consistency is increased, while data re-entry and re-audit requirements are greatly reduced or eliminated completely. Furthermore, two-way data exchange enables remote audit tasks to be completed in a shorter timeframe, often decreasing inventory as a by-product. If projects are completed faster, inventory turns increase — which bring down project liability and also interest payments. With access to a central database, workers can not only correctly diagnose a problem, but also research its solution while on site. This eliminates the transportation and labor costs associated with return visits for the actual repair.

**Shortened project cycles** – Faster time-to-completion provides an enterprise with a more attractive and competitive offer. Faster, more accurate projects can be sold at greater margin, or, alternatively, allow a company to reduce its price point as an additional competitive advantage. The more compelling offer can result in new sales, more repeat sales, and shortened sales cycles – all of which can have a direct impact on the top line.

## Mobile Solution ROI Scorecard

There are key determinants that are common to any company implementing a mobile Field Force: Remote Audit solution.

**Mobile Solution ROI Scorecard**
*In Thousands of Dollars*

| | Year 1 | Year 2 | Year 3 |
|---|---|---|---|
| Increased Revenues | $___ | $___ | $___ |
| Cost Savings | $___ | $___ | $___ |
| Avoided Costs | $___ | $___ | $___ |
| Total Benefit | $___ | $___ | $___ |
| Total Investment | $___ | $___ | $___ |
| ROI ($) | $___ | $___ | $___ |
| ROI Benefit (%) | ___% | ___% | ___% |
| Payback Period | _____ | | |
| 3-Year ROI (NPV) | $___ | (___%) | |

This model uses textbook algorithms for measuring ROI in dollars and ROI as a percent for a given time period:

**ROI ($) = Total Benefit – Total Investment**

**ROI (%) = Total Benefit/Total Investment**

This model measures ROI over a three-year time period, focusing on the returns realized the first year after mobile solution deployment and the cumulative effect after three years.

**Payback Period** computes the time period required for the enterprise to recoup its mobile solution investment.

**3-year ROI** is calculated by taking the Net Present Value of the three-year net cash flows (i.e., ROI ($)), using a discount rate equal to the 30-year T-Bond rate (3.46%).

## Total Benefit

**Total Benefit = Increased Revenues**
**+ Cost Savings**
**+ Avoided Costs**

**Increased Revenues** are sales directly attributable to the application implementation, derived from higher close rates, shortened sales cycles, and higher repeat sales. Faster time-to-complete on mobile audits can also have a negative effect on revenues by decreasing the number of billable hours and lowering the utilization capacity of workers. Enterprises offering remote audit services, achieve higher sales close rates and shortened sales cycles. This is directly attributable to increased pricing flexibility (i.e. services are completed in less time) and improved accuracy.

**Cost Savings** are derived from savings associated with reduced outsourcing requirements and lower administrative costs that are the direct result of the application deployment. Labor reductions that do not result in staff eliminations are not included in the ROI calculations as the affected employees are simply re-deployed within the organization.

Key categories for cost reduction include:

- Project variances from budget – reductions due to greater accuracy and quality of data
- Interim project financing – decreased due to shortened task complete times
- Labor costs – reductions due to net reduction in staff/payroll expenses
- Project liability – decreased due to faster completion and sales of projects
- Inventory turns – increased turns result in lowered costs of maintenance
- Administrative costs – reductions such as printing or shipping, result from single-step data entry and electronic data transfer

**Avoided Costs** are derived from elimination of staff, shipping, printing, transportation costs, and other components of the workflow resulting from the mobile solution deployment. These include:

- Two-step data entry required by manual processes, is reduced to accurate data entry onsite
- Data transfer is now automated, eliminating associated printing and shipping costs
- Repeat audits are only required when data is of poor or questionable quality and cannot be verified without re-work
- Administrative costs such as outsourced data entry from paper forms are eliminated
- Labor costs for third party re-audits and data verification are eliminated

## Total Investment

**Total Investment = Mobile Solution Development Costs**
**+ Mobile Solution Infrastructure Costs**
**+ Mobile Solution TCO**

**Mobile Solution Development Costs** include the upfront application development costs amortized over a three-year period, added to the annual incurred costs to maintain and enhance the mobile solution.

**Mobile Solution Infrastructure Costs** include the upfront hardware and connectivity costs directly attributed to achieving the deployed mobile solution, added to the annual incurred infrastructure costs to maintain and enhance the mobile solution. Handheld device, add-on and accessory costs are not included.

**Mobile Solution Total Cost of Ownership (TCO)** measures the costs incurred by the enterprise starting at the time of deployment of the mobile solution. Included are the handheld device units; add-ons; accessories; 3rd party application license fees; airtime service fees; and the ongoing costs of training, maintenance, and support. The handhelds and add-on investments are annualized over the expected lifetime of the device. For a more detailed description of the TCO methodology, refer to the May 2002 study conducted by Gantry Group titled "Enterprise Handheld Mobile Solution TCO". Contributing TCO cost components include:

- Average Device Cost per handheld, annualized over expected lifetime
- Average Add-on Cost per handheld, annualized over expected lifetime
- Annual Air Time (i.e. Wireless) Services costs per unit
- Annual Software Distribution/Management costs per unit
- Annual IT Services cost per unit
- Annual Help Desk trouble shooting and assistance costs per unit
- Annual Training costs per unit

## ROI Methodology

Palm™ Solutions Group retained the Gantry Group, LLC to develop a ROI Scorecard tailored to Field Force: Remote Audit solutions.

Gantry Group employed a structured methodology to collect quantitative ROI metrics via interviews with companies implementing Field Force: Remote Audit applications as part of their enterprise mobility solution. The ROI Scorecard focuses on direct and indirect quantitative ROI components; qualitative, intangible components were not modeled due to the possible inaccuracy they might introduce.

The ROI Scorecard is based upon data prior to enterprise mobile solution deployment as compared with the same business metrics 12 months, 24 months, and 36 months following deployment. The ROI calculation considers the costs associated with one, discrete deployment of a set of handhelds for a specific organization within the enterprise. If additional handhelds were purchased and deployed in the three time periods following initial deployment, costs and benefits associated with follow-on units were not included. Therefore, the ROI calculation has a single "start date" upon which the three future time periods are based.

For each of the three future time periods, the ROI tool calculates ROI as the difference between the investment and benefits for the period. The ROI, expressed as a percentage return, is calculated by dividing the total benefits by the total investment for each of the three time periods. The three-year ROI is calculated by taking the Net Present Value of the three-year net cash flows (i.e., ROI ($)), using a discount rate equal to the 30-year T-Bond rate (3.46%).

## Case Studies

Three case studies were developed in order to gain actual ROI data for Field Force: Remote Audit solutions. The industries represented by these case studies — Construction, Consumer Goods Market Research, and Safety and Security — characterize the broad range of business sectors that include mobile field service functions as a key component of their business processes.

The case study enterprise participants were selected based on several factors, including:

- Mobile solution be deployed for at least one year
- Ability to articulate and qualify the specific cost and benefit drivers
- Their ability to quantify mobile solution costs and benefits

## Clark Wilson Homes, Inc.

**Industry:** Real Estate/Construction

**Mobile Solution ROI Scorecard**
*In Thousands of Dollars*

| | Year 1 | 3-Year NPV |
|---|---|---|
| Increased Revenues | $ 500 | $ 1,813 |
| Cost Savings | $ 350 | $ 1,097 |
| Avoided Costs | $ 60 | $ 168 |
| Total Benefit | $ 910 | $ 3,078 |
| Total Investment | $ 49 | $ 139 |
| ROI ($) | $ 861 | $ 2,939 |
| ROI Benefit (%) | 1,857% | 2,214% |
| Payback Period | Under 1 month | |

***"Clark Wilson realized a 19% savings in building production time, of which 50% was directly attributable to the mobile solution, giving superintendents the ability to act more quickly to remedy project problems.***

***Shortening home production time has decreased interim interest costs by over $150,000 annually."***

**Nedda Brown**,
Formerly, VP Operations, Clark Wilson Homes, Inc.,

Now, President, Capital Pacific University,
Division of Capital Pacific Holdings

### Company Overview and Business Environment

Capital Pacific Holdings, Inc. (AMEX: CPH) is a diversified real estate development company with annual revenue of $364 million in 2001. CPH has two main segments: homebuilding and mixed-use land development. CPH operates under the name Clark Wilson Homes, Inc. (Clark Wilson) in Texas, and is a wholly owned subsidiary of CPH.

CPH has developed communities of new homes for buyers with varying lifestyles and budgets throughout Arizona, California, Colorado, and Texas for past 25 years. One of the largest builders of new homes in the country, as ranked by Professional Builder Magazine, CPH has established itself as a premiere builder of entry level, move-up, and semi-custom homes.

Clark Wilson is focused on constructing quality homes and communities in Texas. The company's mission is quite simply to achieve complete customer satisfaction by striving for Total Quality — in everything that the company does. In keeping with this mandate, the company has invested in an enterprise mobile solution for its building superintendents.

Building superintendents are responsible for inspecting homes under construction twice a day to ensure that the building project is on schedule, trade partners are directed and coordinated properly, errors are caught early and problems are resolved quickly. Regular onsite inspection of the building is key to avoiding project variances — unforeseen work items beyond the scope of the original project budget.

A key business performance metric is building cycle time — the time period from signing the build contract through the closing with the customers. Minimizing the building cycle highly leverages the bottom line. Having a building project completed on time and on budget is essential to running a profitable construction business. On average, Clark Wilson builds over 350 houses per year. Therefore, a day saved in build-time per home amounts to capacity to build more homes per year.

Builders, like Clark Wilson, fund the hard costs of construction projects through interim financing, incurring interest until the building or home can be sold to the buyer. Turning this construction inventory quickly means more buildings are sold per year, and less interest is accrued per project. Accelerating project schedules directly improves the bottom line for the business. The overriding business goal is to build more houses with the same resources. Completing houses on time and according to building plan increases customer satisfaction and confidence.

### Infrastructure Problem and Palm™ Solutions Group's Response

Building superintendents are required to visit each building site at least twice a day. These superintendents needed a productive way to conduct business, regardless of their remote location. Clark Wilson wanted just-in-time information that would allow building superintendents to provide a complete evaluation of every house and community under construction.

To accomplish this goal, Clark Wilson first tried having superintendents phone in status from the field. Status proved to be untimely and too often, inaccurate. Next, the company tried equipping superintendents with desktop computers at each of the field offices. The expectation was to have superintendents routinely transcribe written field data into their field office computers for electronic transfer to headquarters. Again, this produced disappointing results.

Finally, Clark Wilson developed a multi-phase mobile solution plan, initially deploying 50 Palm™ III and Palm™ m500 series handhelds to all building superintendents. This innovative mobile solution automated the following business processes for the company, enabling superintendents to:

- Track locations of all homes under construction
- Create and manage "Punch Lists" to track status of building items requiring repair and re-work
- Track and change building schedules in the field, and submit current updated schedule to corporate headquarters
- Schedule and coordinate contractors
- Track and submit project variants (work items above or out of plan) for purchase order approval
- Automate purchase order and service order approval for project variants
- Link the house warranty (1 year to buyer) to the obligated contractors used on the particular house project

The mobile solution enabled a fluid business process between the field (i.e. over 350 home building sites annually) — and the central office, enabling superintendents to record building events on a daily basis — onsite.

Clark Wilson was able to rapidly deploy the first phase of its solution within months, including application development, procurement, testing, and staff training. The solution includes Punch List software from Strata Systems (www.punchlist.com), as well as custom development by the company's internal IT staff.

## Motivations and Cost Drivers for Palm™ Solutions Group Mobile Solutions

Clark Wilson identified a number of business objectives which drove the development and deployment of this mobile solution. The company sought to decrease its costs, improve its business relationships with trade partners, increase homeowner satisfaction, and improve the productivity of its workforce.

**Shortened production time** – Shortening the production time of a house lowers the draw on interest from the interim lender. At the same time it increases inventory turns (i.e. building projects) per year with the same staff level, thereby increasing capacity to build more homes annually. Further, reduced production time lowers the overall exposure of the home under construction to liability and the opportunity for damage. Every day squeezed out of the project timeline represents significant cost savings.

**Avoiding project overruns and variances** – Clark Wilson wanted a better process for reviewing, approving, and managing project variances. There are two types of project variances – money and time. Having the superintendents regularly at the building site lowers the occurrence of job error and the spiraling costs of correcting these errors when discovery is delayed. Such problems needed to be spotted and remedied at the site by recording the problem, contacting the appropriate trades people and approving related purchase order.

Changes in project plan also impact carefully coordinated trade contractors and their availability, causing a ripple effect in the overall schedule due to project dependencies. By handling building errors immediately, there are now fewer issues regarding assignment of problem responsibility with the trade contractors.

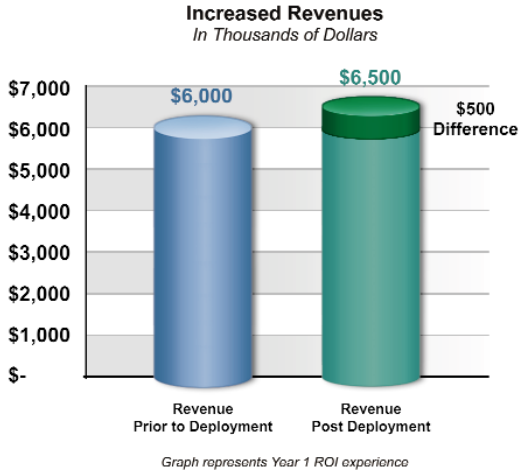
**Increased productivity** – Prior to Palm Solutions Group mobile solution deployment, each superintendent spent 1 to 2-1/2 hours per day (i.e. 10-12 hours per week) manually entering written field data into the enterprise's information systems. Creating the data once – not twice – was a better approach. Written project notes and the transcription process overall were both highly prone to error.

**Lowering warranty exposure** – Clark Wilson, and the associated trade contractors used on a given house, extend a 1-year warranty to the buyer – meaning anything that goes wrong with the house within the warranty time period will be repaired at no cost to the customer. Clark Wilson needed an efficient method for managing warranty contracts – with the buyer and responsible contractors – so that Clark Wilson did not unnecessarily become liable for the repairs. Further, routine onsite data capture provided Clark Wilson with a documented audit trail of interactions with trade contractors. This substantially clarified trade contractor responsibilities during the warranty period.

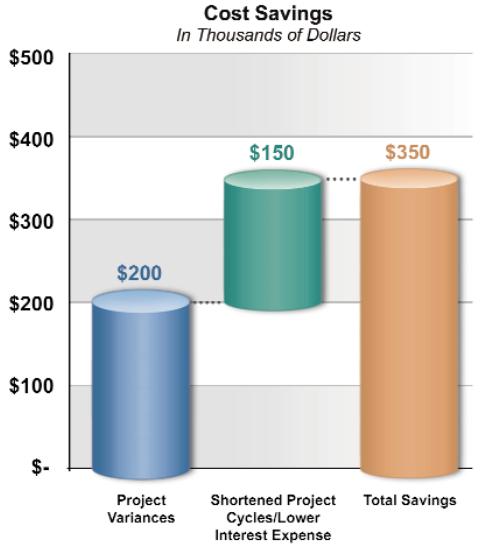
**Lower building risk policy premiums** – Shortening project cycles and increasing building accuracy reduced insurance claim rates, bringing lower annual premiums.

**Increase inventory turns** – Increasing turns per year increased revenue and greater profits.

## Realizing ROI through a Palm™ Solutions Group Mobile Solution




*Graph represents Year 1 ROI experience*

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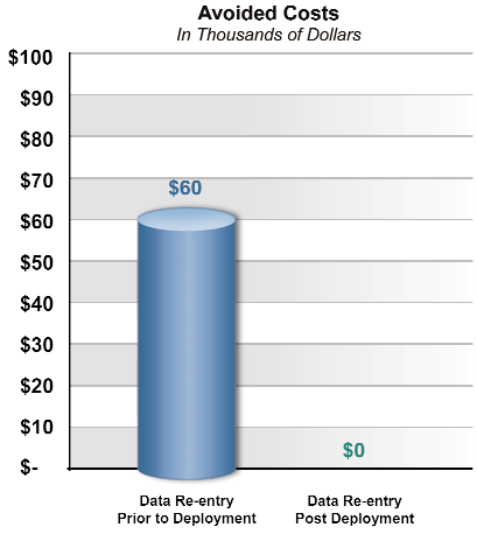



*Graph represents Year 1 ROI experience*

### Total Benefit

#### Increased Revenues

Reducing the build cycle time meant more houses could be built annually – translating into over 50 more houses annually and additional gross revenue of $1M — 50% of which Clark Wilson directly attributes to their mobile solution.

In the first year of deployment, Clark Wilson realized a 19% (135 days reduced to 110 days) savings in project cycle time, of which 50% was directly attributable to the Palm Solutions Group mobile solution.

Inventory turns (i.e. completed housing developments) increased by 20% annually — from under 2 to 2.5 times per year.

#### Cost Savings

Project variances dropped by 50% per year – from 2% to 1%, amounting to over $200K annually.

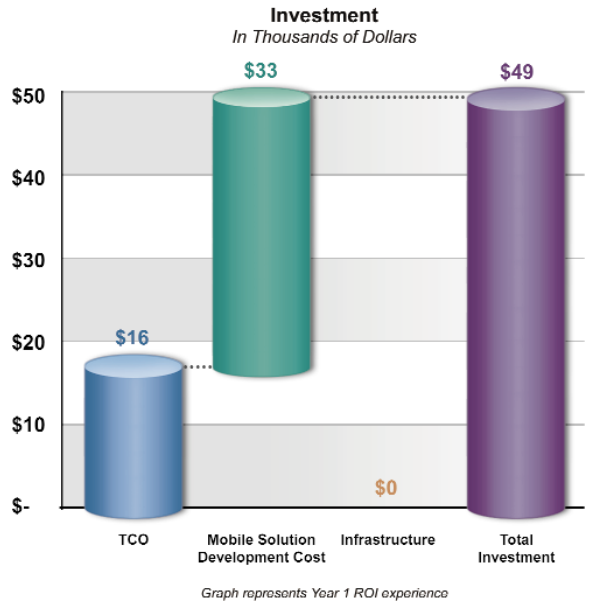
Shorter project cycles reduced the interest expense on interim financing to cover building hard costs – over $150K annually. Clark Wilson credits this savings to its Palm handheld solution.

Reduced interest payments and project variances saved the company $349K in the first year of deployment.

#### Avoided Costs

Field data re-entry costs of $60K annually were totally avoided. Superintendents entered building project data once, avoiding 10-12 hours of data transcription costs weekly — time that was re-appropriated to other tasks.

Administrative labor costs (two people) related to field data entry and report preparation have been eliminated.




*Graph represents Year 1 ROI experience*

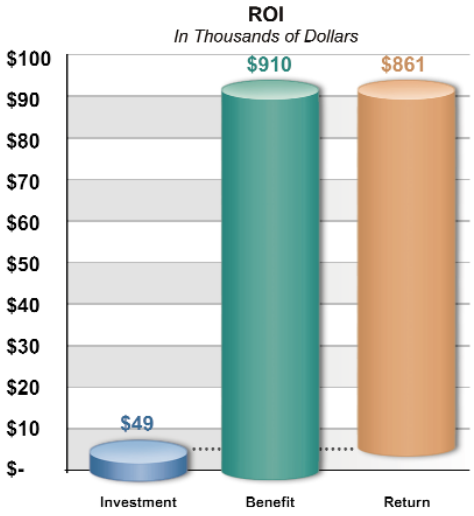
## Total Investment

### Investment

Clark Wilson made a modest $49K upfront investment to launch its mobile solution. By leveraging its existing corporate infrastructure, no additional equipment and connectivity costs, beyond the handhelds, were incurred.

Ongoing maintenance and annual solution upgrades to add additional capabilities such as homes under construction locators and purchase/service order processing averaged $30K.

The total development and deployment cost of Clark Wilson's 50-handheld mobile solution was $989 per handheld per year, annualizing for a handheld and add-on lifetime of 1.5 years and a 15% loss/damage rate (on average).




*Graph represents Year 1 ROI experience*

## ROI

### Quantitative Payback

For the modest investment of $49K, Clark Wilson's mobile solution returned $910K of benefit the first year of deployment, yielding $861K ROI.

## A Leading Sales & Market Research Company for Global Consumer Goods Industry — (Name Withheld)

**Industry:** Consumer Goods Market Research

**Mobile Solution ROI Scorecard**
*In Thousands of Dollars*

| | Year 1 | 3-Year NPV |
|---|---|---|
| Increased Revenues | $ 1,800 | $ 5,047 |
| Cost Savings | $ 176 | $ 493 |
| Avoided Costs | $ 1,289 | $ 3,614 |
| Total Benefit | $ 3,265 | $ 9,154 |
| Total Investment | $ 415 | $ 1,164 |
| ROI ($) | $ 2,850 | $ 7,990 |
| ROI Benefit (%) | 787% | 786% |
| Payback Period | Less than 2 months | |

***"Our initial motivation for a Palm Solution Group mobile solution was to avoid the shipping costs to transport data from the field force, amounting to $250K annually.***

***Now that we are deployed, we have also avoided data re-entry costs, decreased data collection re-audits, lowered our field force labor costs, and increased client renewal rates due to increased satisfaction with data accuracy."***

Director, IT/MIS- Engineering

### Company Overview and Business Environment

This case study profiles a leading sales and market research partner in the global consumer goods industry, employing 5,000 people with annual global revenues of over $556 million in 2001. The company delivers timely market and consumer intelligence to consumer goods manufacturers and retailers to provide accurate insight into the performance of their distribution channels.

This case study profiles one of the company's divisions that collects and analyzes Point-of-Sale (POS) data from convenience stores nationwide, contributing $18 million in revenue to the company annually. The division relies upon a geographically dispersed field force of 1,600 people to remotely collect data on specific manufacturers' products that are distributed through convenience stores throughout the U.S. Over 500 convenience stores are canvassed 350 times each year to record products' selling performance, and store compliance with manufacturers' seasonal marketing promotions and in-store display requirements. This data is collected in the field, tabulated and analyzed, and then sold as a data service to consumer goods manufacturers. Timely and robust data is the value proposition that this division must bring to over 200 clients.

### Infrastructure Problem and Palm™ Solutions Group Response

Prior to its Palm Solutions Group mobile solution deployment for remote audits, the field force used a completely paper-based business process, making written recordings of convenience store audit data and subsequently express mailing the data to corporate headquarters. Using an outsourced data entry firm, the handwritten data was manually entered into the company's centralized information systems where it could be analyzed and formatted for reporting. The company recognized this process to be inefficient, prone to error, and expensive.

A complete mobile software solution would not only facilitate data entry, it would allow the data to be entered once, and transmitted electronically to central headquarters. In 2001, the company deployed its custom mobile solution, involving 800 Palm™ V and 200 Palm™ III handhelds, to the field force.

## Motivations and Cost Drivers for Palm™ Solutions Group Mobile Solutions

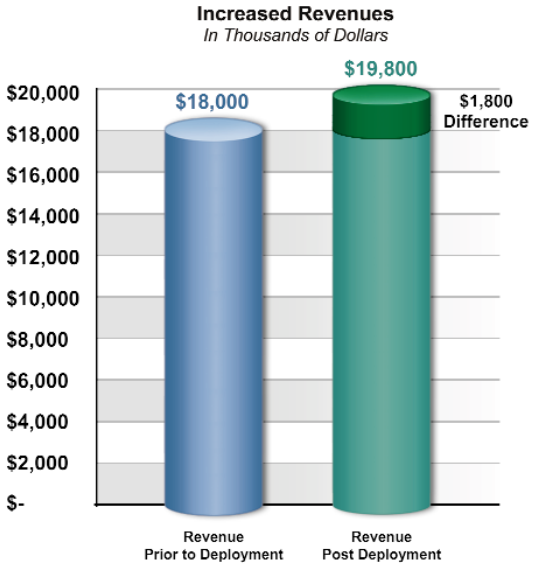
The cost drivers for investing in a Palm Solutions Group mobile solution were clear from the start. The cost of processing paper data forms was too high. Electronic transmission of field force data would immediately eliminate the annual data transportation expense of $250 thousand. Electronic data capture and transmission of field data would provide corporate headquarters with near real-time and inexpensive access to more accurate data.

While eliminating data shipment costs was the original justification for the mobile solution, the company recognized several other areas of cost savings, as well as revenue increase. Increased efficiency capturing field data enabled the company to lower annual field force labor costs. The need for an outsourced data re-entry firm was totally eliminated.

Because field data is entered directly into the handheld and electronically transmitted to corporate, human data-entry errors have been avoided. Additionally, the need for field re-audits has dropped by 70%.

The overall increase in data quality has been noted by customers, as evidenced by significantly higher annual data subscription renewal rates. Furthermore, customers are less skeptical of the data and the company receives fewer customer calls questioning the results. Data subscriptions are simply easier to sell.

## Realizing ROI through a Palm™ Solutions Group Mobile Solution

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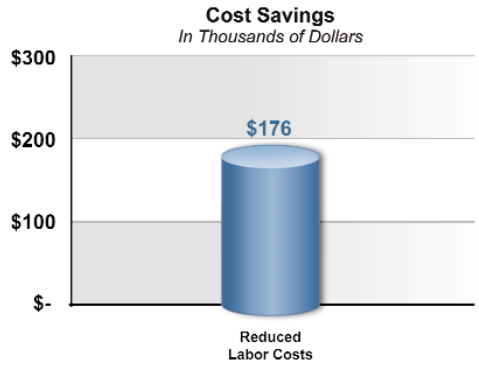
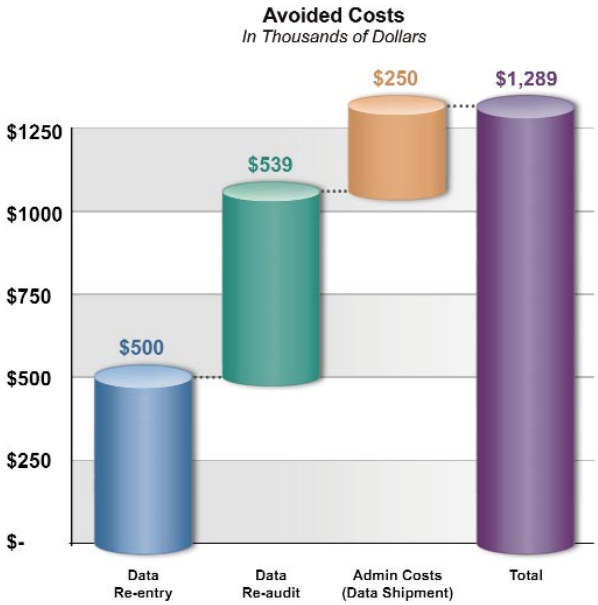



*Graph represents Year 1 ROI experience*




*Graph represents Year 1 ROI experience*

## Total Benefit

### Increased Revenues

Client renewals increased by 10% due to improved data accuracy and reliability. This represents an increase of $1.8M in revenue annually – or a 17% increase in the division's annual *repeat* sales revenue.

### Cost Savings

Labor costs for field data collection dropped by 2% — a $176K savings, annually. This labor reduction came as the result of improved efficiency capturing data in the field. The division has taken on 10% more workload — i.e. convenience store audits — while simultaneously reducing associated labor costs.

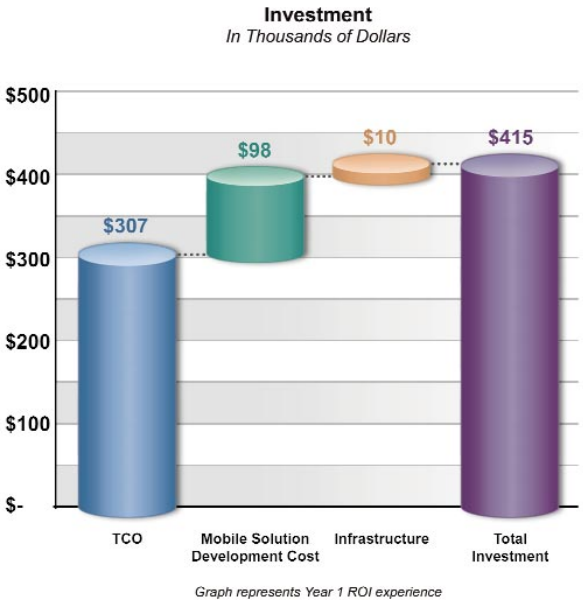
### Avoided Costs

Outsourced services for data entry were no longer necessary, saving $500K.

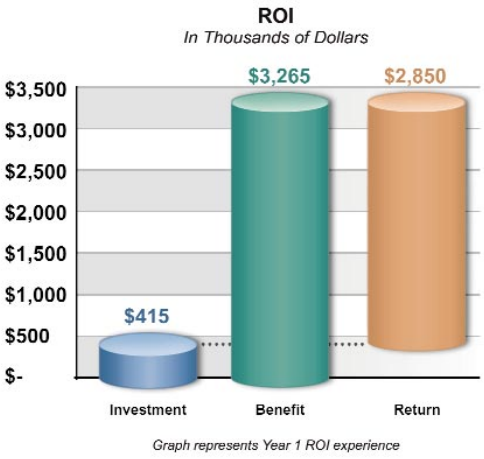
Re-audits due to data error dropped from 10% to 3% — a 70% decrease representing a savings of $539K annually.

Shipment costs of written data captured in the field to corporate headquarters were totally avoided, saving the division $250K annually.

The total avoided costs were $1.289M.




*Graph represents Year 1 ROI experience*




*Graph represents Year 1 ROI experience*

## Total Investment

### Investment

The company invested in 800 Palm™ Vx and 200 Palm™ III handhelds, 60% configured with folding keyboards, 10% configured with bar code scanners, and 10% with wireless modems. This annual TCO was $307,000. All handhelds were configured with a remote audit/diagnostic software application, which is included in the TCO calculation.

An upfront development cost of $195K was incurred to create the mobile solution. No other investment was needed due to complete reuse of existing corporate infrastructure. Annual software maintenance and telecom costs of $32.5K and $10K respectively, were incurred. Amortized over a 3-year period, annual mobile solution development and infrastructure costs amounted to $108K.

The combined mobile solution development and deployment cost was $415 per handheld per year, or $415K for the 1,000 deployed handhelds — annualizing for handheld and add-on lifetime of 2.5 years (on average) and a 5% annual handheld loss/damage rate.

## ROI

### Quantitative Payback

The company recouped its entire enterprise mobile solution investment in less than two months, realizing a total return of $2.9M (787%) the first year and $8.0M in 3 years (NPV).

## Global Protective Management, Inc.

**Industry:** Safety and Security

**Mobile Solution ROI Scorecard**
*In Thousands of Dollars*

| | Year 1 | 3-Year NPV |
|---|---|---|
| Increased Revenues | $ 590 | $ 2,477 |
| Cost Savings | $ 13 | $ 36 |
| Avoided Costs | $ 33 | $ 93 |
| Total Benefit | $ 636 | $ 2,606 |
| Total Investment | $ 53 | $ 146 |
| ROI ($) | $ 583 | $ 2,460 |
| ROI Benefit (%) | 1,200% | 1,785% |
| Payback Period | 1.1 months | |

***"Through increased field data collection efficiency afforded by our Palm Solution Group mobile solution, we have doubled our security consultants' billable time, while increasing responsiveness to our clients."***

**Roger Bresden**,
President, Global Protective Management, Inc.

### Company Overview and Business Environment

Managing critical business risks is one of the biggest challenges facing organizations today. Many companies are facing increased costs due to escalating, and complex security-related losses. Global Protective Management, Inc. (GPM) develops software and provides consulting services to help companies ensure that their facilities security program is consistent across corporate operations and is compliant to repudiated standards. GPM's software and services help companies avoid liability events (e.g. workers compensation, litigation), prevent accidents, and guard against terrorist and hacker attacks.

One year ago GPM launched their new product, SecureAssess™. The company selected Palm™ Solutions Group to provide its mobile platform for the product. SecureAssess is a totally integrated security package utilizing world-class security content in a state-of-the-art software system. Only days after launching their new product and related services, SecureAssess was named Grand Prize Winner as the hottest new product at the ASIS (American Society for Industrial Security) International 2001 Conference.

GPM offers its clients a range of security software and service products for conducting physical security assessments of any type of structure or site, including a General Security Assessment, High-Rise Security Assessment and Health Care Facilities Security Assessment. Customizable and portable, SecureAssess saves up to 75% of overall assessment time as it guides staff through a pre-established, comprehensive assessment process. Organizational data is captured and transferred into a software database. Key reports are generated automatically for quick access to results. Data is captured in the field and synched to the centralized data server.

GPM's security consultants use SecureAssess to offer consistent, comprehensive, efficient site assessments on behalf of its clients who do not employ security professionals.

### Infrastructure Problem and Palm Solutions Group Response

Applying eighty years of combined security and policy experience, GPM developed its mobile solution, SecureAssess, for Palm™ m505 handhelds. The solution allows security and safety data to be captured during the onsite building inspection.

To ensure data accuracy, security and safety, data must be collected on site during the building inspection. Prior to GPM's investment in SecureAssess, there were several security audit process issues:

**Manual data capture** – Data was manually captured on paper in the field, requiring security consultants to transcribe the data into the corporate information system. Data capture and entry alone consumed eight hours of a security consultant's time, per audit.

**Costly and laborious data reporting process** – The company used paper reports and bounded notebooks that were then shipped via postal mail to the client.

**Lengthy building security assessment process** – Initial assessment took 6 days, requiring 3 days of data gathering and 3 days of report preparation, printing and binding.

**Client requests for pro-bono historical data analysis** – Approximately 10% of GPM's clients annually requested these reports, which required an entire unpaid week of a security consultant's time.

SecureAssess guides the security consultant through a forms-based user interface to present over 365 questions. This due diligence process gauges a building's security compliance profile and identifies liabilities. Data pertinent to evaluating a building's compliance to safety and security standards is captured remotely, right at the building site – ready for electronic transfer to the GPM's corporate information systems. This data is analyzed and a recommendations report is prepared for presentation to the client.

## Motivations and Cost Drivers for Palm™ Solutions Group Mobile Solutions

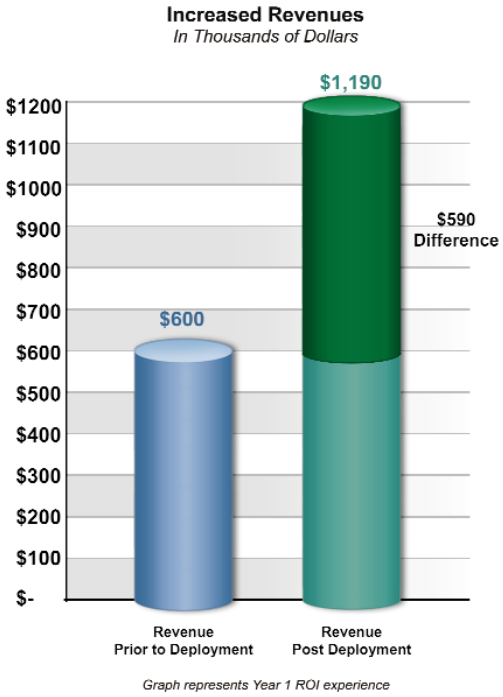
GPM recognized that electronically capturing field data for electronic transmission to headquarters brought both significant cost savings and increased audit process efficiency. The result was a doubling of billable security consultant hours in the first year of mobile solution deployment. The time to conduct a building security and safety assessment was reduced by 50%. Increasing audit efficiency has widened GPM's profit margin per project. This pricing flexibility has been a strong competitive advantage for GPM, reflected in shortened sales cycles and increased close rates.

The data-gathering phase of the security assessment was reduced from 3 days to 1 day – a 2-day savings – immediately bringing the overall project time down from 6 days to 4 days.

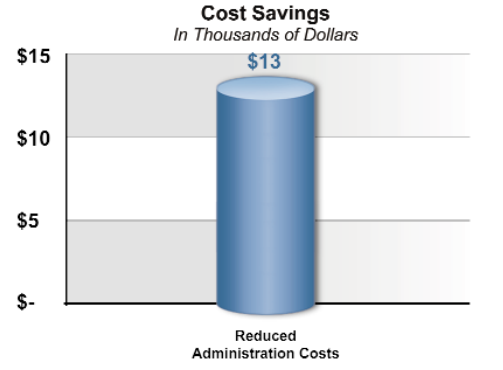
Field data is now in electronic format throughout the entire assessment process. Over 75% of assessment reports are now emailed to GPM's clients, avoiding significant administrative costs.

With client data completely stored and analyzed in digital format, the pro-bono data analysis has been completely eliminated. Clients can now directly access their security data and view historic trends.

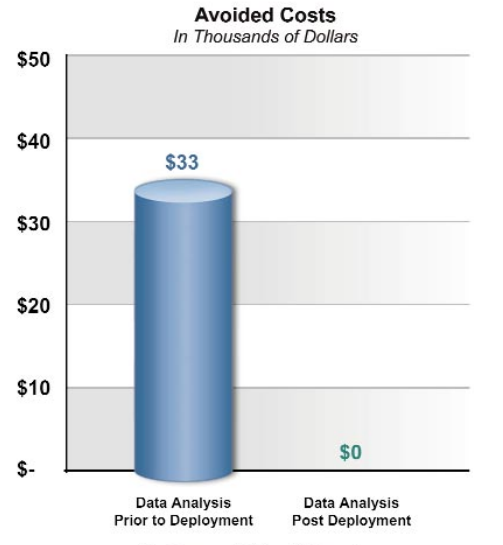
## Realizing ROI through a Palm™ Solutions Group Mobile Solution




*Graph represents Year 1 ROI experience*




*Graph represents Year 1 ROI experience*




*Graph represents Year 1 ROI experience*

## Total Benefit

### Increased Revenues

Sales cycles have shortened by 30% and sales close rates have increased by 25% due to increased pricing flexibility and competitiveness afforded by lower project labor costs.

Increased data entry efficiency and analysis has reduced security project time by 50%, doubling their security consultants' billable hours.

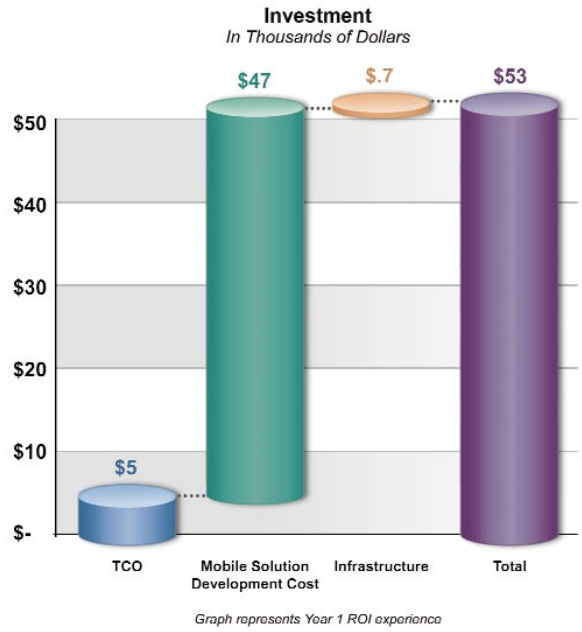
Increased timeliness and accuracy of the data has led to higher repeat sales of 25-30% annually.

### Cost Savings

With inspection data captured and electronically transferred to GPM headquarters, security reports are now emailed to clients in digital — instead of printed — format, 75% of the time. This represents about a $13K savings annually.

### Avoided Costs

GPM avoided $33,000 in costs annually due to elimination of re-audits, data re-entry and data analysis.



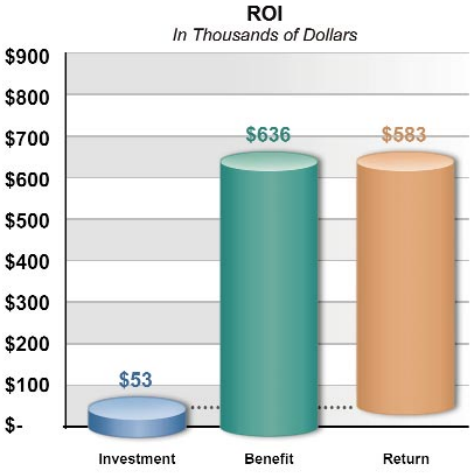

*Graph represents Year 1 ROI experience*

## Total Investment

### Investment

Annualized over a 5 year handheld lifetime, GPM's TCO is $5K.

GPM invests about $47K annually in the ongoing software development of SecureAssess. The company made modest computer equipment investments, including a server and monitor.




*Graph represents Year 1 ROI experience*

## ROI

### Quantitative Payback

For the investment of $53K annually, GPM — in the first year of mobile solution deployment — increased their revenues by over $500K, and lowered/avoided costs by $46K. The company fully realized payback for their investment within one month of deployment.

## APPENDIX

It is important to follow the ROI guidelines described below in order to calculate an accurate enterprise mobile solution ROI analysis. It should be noted that this ROI model is tuned to specific business metrics for Field Automation: Remote Audit applications.

- The ROI model discussed in this document is highly quantitative and focused on actual, tangible business performance metrics. These performance metrics are specific to companies implementing enterprise Field Force: Remote Audit mobile solutions. Every effort to maintain the integrity of the calculation and rigor of the model has been made to ensure against "double counting" of benefits and incomplete assessment of total costs.
- Users of this ROI model should exercise caution when providing data on labor savings. Only those labor savings that actually result in staff reduction should be included in the model.
- Other tangible, but non-measurable business metrics, should also be input with care. In particular, building projects that are completed faster have less risk associated with sustaining unexpected damage and incurring unknown liability. Unless users actually track liability data and have quantified risk on a per project basis, these factors, though significant if incurred, should not be included in the ROI calculation.
- When using this model, managers are encouraged to carefully assess each of the ROI components —whether costs, savings, or revenues. In many cases, the business metrics listed in the model will not all be applicable, while others will not even be measured by a given company.
- The model calculates the ROI for a three-year period in 1, 2, and 3-year time-horizons. In some cases, the expected lifetime of the handheld device is less than 2 or three years. The model assumes that the TCO of the handheld devices, while annualized over the lifetime of the device, is amortized over the time-period in question.

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