



August 2003

## Value Driver Profile Report

### SpotCell™ In-Building Solution for Wireless Carriers

#### Solution Payback Assessment

Spotwave's new adaptive wireless repeater technology – SpotCell - not only brings a compellingly high ROI and unprecedented low TCO to in-building solutions, it will in fact serve as a critical enabling technology component in the emerging wireless data market.

#### Top Value Drivers

- Winning new enterprise sales
- Winning new wireless data business
- Improving the point-of-sale environment
- Retaining current enterprise customers
- Overcoming customer satisfaction issues with level of service

The Gantry Group, LLC  
30 Monument Square  
Suite 214  
Concord, MA 01742  
[www.gantrygroup.com](http://www.gantrygroup.com)

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# SpotCell In-Building Solution ROI Study with Wireless Carriers

## Abstract

Spotwave Wireless Inc. ([www.spotwave.com](http://www.spotwave.com)) is revolutionizing how wireless carriers meet the level of service demands of their enterprise customers for in-building performance. Spotwave has created SpotCell™, the next generation of wireless repeaters. SpotCell represents a new wireless technology category called *adaptive repeaters*. SpotCell applies a knowledge-based algorithm which automatically assesses its environment, learns about changes, and adapts itself in real-time to the changes within the carrier's network.

SpotCell has demonstrated increased enterprise customer satisfaction, customer retention and new customer acquisition for both voice and data through the following attributes:

- Low capital investment in equipment
- Fast time to deployment
- Low Total Cost of Ownership (TCO) as the result of low capital and deployment time investment
- Guaranteed protection of the integrity of the spectrum due to SpotCell's ability to never oscillate, or generate excess noise or spurious signals

Spotwave engaged the Gantry Group to conduct an objective ROI study to examine the key ROI value drivers and cost savings realized through the adoption and deployment of the SpotCell solution. Gantry Group interviewed 7 leading wireless carriers using a single, consistent session guide to conduct the interviews. This study revealed that there is considerable pent-up demand for quality in-building service, driven by enterprise mobility needs for wireless voice and data.

The wireless subscriber rate slow down has put pressure on carriers to retain current customers and win new business primarily by encouraging customer defections from competing carriers. For the most part, carriers are now pursuing a fixed pool of sales opportunity. It's no surprise that this scenario has earned the cellular service industry an annual double-digit customer churn rate. Today, preventing attrition of the installed customer base is critical to the very survival of any carrier.

Selling *level-of-service* is the critical step for carriers to overcome this high customer churn rate and increase customer loyalty. This implies that carriers will proactively offer a portfolio of after-market service options for enterprises and consumers that can draw new and desperately sought revenue streams to relieve profit pressures. In-building service is one of these new revenue areas made feasible to pursue because of breakthrough products like SpotCell that change the TCO equation – and therefore the investment decision process - for the carrier.

Carriers must prepare for this wireless data revolution. Having the ability to overcome enterprise in-building "hot spots" quickly, effectively and at a low price point will be a critical success component in the wireless race.

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SpotCell™ is a trademark of Spotwave Wireless Inc.

After aggregation and analysis of ROI profiles developed with leading carriers who have SpotCell deployments, Gantry Group concludes that Spotwave's new adaptive wireless repeater technology not only brings a compellingly high ROI and unprecedented low TCO to in-building solutions, it will in fact serve as a critical enabling technology component in the emerging wireless data market. SpotCell's low price point makes rapid deployment financially feasible. SpotCell's adaptive intelligence leads to minimal field service requirements, making carrier support of a broad deployment of these units achievable. Carriers' failure to have a solution here will give way to competition, such as Wi-Fi.

## About this Study

Spotwave engaged the Gantry Group to conduct an objective ROI study that would examine the key ROI value drivers, including increased revenue opportunities and areas of cost savings, realized through the adoption and deployment of the SpotCell™ solution. Specifically, Gantry Group explored the comprehensive in-building wireless service programs designed by carriers to retain enterprise customers, renew enterprise customers for additional contract periods, and win new customers. This white paper captures and explores the experiences of 7 cellular carriers, achieved through SpotCell.

Using an interview-based approach, Gantry Group interviewed key wireless carrier sales representatives, RF engineers, network performance engineers and project management staff to develop a deep understanding of SpotCell's impact from the vantage point of each constituency.

The study was designed to probe the following issues for carriers:

- The strategic importance of in-building service offerings
- Defensive and proactive programs launched to leverage their in-building capabilities
- The impact of enterprises' wireless data demand on in-building level of service
- The critical success factors for an in-building solution
- The value drivers delivered by the SpotCell solution

## The Wireless Carrier Lifecycle

The wireless carrier market can be depicted as:

- Highly competitive
- Difficult to differentiate services and products
- Low customer loyalty
- High cost of customer acquisition
- Challenged by low profit margins as the result of competitive price wars
- Costly infrastructure to build/maintain networks to support next-generation services
- Showing signs of early adopter saturation

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Added to this challenging business equation is the fact that the overall consumer and enterprise wireless subscriber growth rate has recently stalled after the boon years at a penetration level of approximately 50% of the U.S. population and 70% of Europe.<sup>1</sup> For the most part, the early and moderate adopter market segments have already subscribed to wireless services. The late and laggard market segments remain, requiring additional justification and motivation to rationalize the jump into wireless communications.

This wireless subscriber rate slow down puts further pressure on carriers to retain current customers and win new business primarily by encouraging customer defections from competing carriers. For the most part, carriers are pursuing a fixed pool of sales opportunity. It's no surprise that this scenario has earned the cellular service industry an annual double-digit customer churn rate. Today, preventing attrition of the installed customer base is critical to the very survival of any carrier.

Selecting a wireless carrier for voice services often comes down to price. This is encouraged by price wars among carriers. Carriers are finding it harder to turn profits due to a continue spiral of profit margin erosion. Carriers must find new innovative ways to differentiate there service offering. Most buyers see little else beyond the value-add of basic network access. Carriers are now moving away from the business mindset of "selling minutes", transitioning to the realm of "selling level-of-service".

Carriers are in a tug-of-war, being pulled between generating revenue and reducing costs.<sup>2</sup> The lifecycle of the wireless carrier has come full circle. The early market days of selling a commodity in demand has now matured to a consultative sales strategy that speaks to prospects' full spectrum of needs around ubiquitous, high quality wireless service.

Selling level-of-service is the critical step for carriers to overcome the high customer churn rate and increase customer loyalty. This implies that carriers will proactively offer a portfolio of after-market service options for enterprises and consumers that can draw new and desperately sought revenue streams to relieve profit pressures.

In-building service is one of these new revenue areas made feasible to pursue because of breakthrough products, like SpotCell, that change the TCO equation for the carrier. The rapidly emerging trend of landline replacement by its wireless counterpart is driving carrier's response to the in-building mandate. Enterprises' requirements for a totally mobile "always plugged-in" workforce, and consumer home office and data networking needs, are creating acute demand for high-quality wireless in-building service.

## **The Importance of Quality In-Building Service**

Coverage – broad area expanse with *continuously* high quality signal reception -- is *the* top issue impacting wireless user satisfaction. Today, a wireless carrier's most important market differentiator is *quality of service coverage*. Both enterprise and consumer customers bring extremely high service quality expectations regarding "anywhere, anytime" access to voice and data. This expectation steadily increases while the workforce becomes increasingly mobile. Consistently high quality wireless network performance throughout the served region is therefore a mandate. This performance level must be sustained in any situation, whether in a rural area or within an urban high-rise building. With 90% of North American commercial buildings being less than 25,000 square feet (i.e. 3.86 million buildings), there is substantial enterprise demand for sustained, high quality in-building service for this sector. In addition to

these standalone buildings, these are many leased spaces (e.g. office space within a tower) of similar size requiring the same in-building service needs.

The rapidly growing rate of the mobile workforce is not new to anyone. There are an estimated 54 million U.S. employees currently involved in some form of remote work.<sup>3</sup> What **is** new is how enterprises are responding to this mobility trend, with most completely revamping their technology and communications infrastructure. Catalyzed by the far-reaching requirement to access corporate data via a wireless – instead of a desktop – connection, there is also a growing trend by enterprises to regard **all** employees as mobile. In fact, many enterprises are adopting a completely wireless communication strategy, retiring and replacing their landline networks. This substantially raises the urgency for enterprise in-building service to be consistently reliable.

Wireless carriers have turned to repeater technology to achieve this ubiquitous level of service and tap the business opportunity afforded by enterprises' expanded use of wireless devices. Careful, strategic deployment of repeater technology is enabling carriers to capture and retain more enterprise lines and minutes through:

- Improved retail point-of-sale experience for walk-in prospects
- Retention of existing customers challenged by in-building service quality
- Higher contract renewal rates for enterprise customers who have expressed that in-building quality is critical or have an urgent need for mobile data access
- Attracting new customers with an enhanced service offering that ensures reliable in-building service

## The Growing Role of Wireless Enterprise Data

Enterprises readily recognize the value of having their staff access data from anywhere and at anytime... globally. Increased staff mobility has created the mandate for wireless communication, with data access rapidly overtaking voice communication as the critical corporate need. Whether in the office, at home, at a customer site, at a business conference, at the airport, on the road – today's workforce must be consistently "plugged into" their mobile desktop. Therefore having excellent communication quality is a carrier attribute that is *assumed* by enterprises – a "must-have check list" item. Wireless network performance must operate within any venue.

Achieving this level of performance is a requirement – not a differentiator for carriers. Not achieving this level of service is the primary ingredient for an unsatisfied customer. Carriers expect that both consumer and enterprise data applications will provide them with opportunities to increase revenue.

Unfortunately, public network performance inside buildings, and areas where topography and obstruction make for poor signal propagation are a major concern for wireless carriers. This includes:

- Commercial office buildings (e.g. small/medium enterprise; manufacturing/warehouse)
- Retail Stores (e.g. within Shopping centers)
- Hospitality (e.g. hotels, conference centers – including lobbies and service tunnels)
- Transportation Centers (e.g. railway stations, airports)

Unhampered by pre-existing infrastructure demands and investments, the global market has generation-skipped with respect to communications strategy, becoming an early adopter of wireless technology deployment. To date, the global market has proven to be the trendsetter and predictor for the North American market when it comes to wireless communication.

In-building and public wireless access have become a priority for carriers and business customers alike in Europe and the Far East. This includes leading telecommunication companies such as mmO2 and Telefonica. In business hubs such as Hong Kong, Singapore and Bangkok, in-building or "shadow area" coverage has been deployed within every upscale commercial office building, public access venue and metropolitan rail system.<sup>4</sup>

Further fueling the adoption curve is the promise of third-generation wireless technology capabilities (i.e. 3G). 3G has whet enterprises' appetites, ready to enjoy new high-speed mobile multimedia services, anytime and anywhere globally. Reliable increased wireless transmission bandwidth is a critical enabling technology for data-intensive wireless applications such as imaging. These new applications are raising the bar for acceptable level of service by enterprises and consumers alike. As a result of new wireless capabilities, corporations are now strategically reassessing how to leverage their value chains with mobile technology. Wireless carriers must have a ubiquitous solution to assist their enterprise customer through this communication strategy transition. In-building coverage - throughout the enterprise - is *critical* to fulfilling enterprises' communication strategies and therefore *critical* to winning enterprise business.

The value drivers propelling enterprise customers to adopt in-building wireless:

**Increased Employee Mobility** – The growing expectation is that employees must always be available to react to ever-changing business priorities that unfold in real-time. Employees must be accessible independent of their physical location, whether in their office, in a conference room, in the lunchroom, or down the hall. This level of accessibility requires them to have voice and corporate data access to immediately react to business and customer events.

**Improving Corporate Data Accuracy** - Enterprise customers are measuring the value return on their wireless services investments through error elimination and reduced need for correction of data. In-building mobile employees can now key in information on the spot, rather than writing a note or waiting to get to a computer.<sup>5</sup> Mistakes can be reduced through avoided time delays and data reentry.

**Improved Access to Customers** – Enterprises are morphing into real-time businesses. Improved customer access to enterprise staff and real-time information is now the new level of services that customers have come to expect.

## Winning the Wireless Data Race

Enterprises can look to either their wireless carrier or wireless LAN provider to solve their in-building wireless data needs today. Wireless carriers are transitioning from yesterday's dial-up analog transmission, to fully digital, always on, packet-switched networks to meet this wireless enterprise data challenge.

An emerging wireless technology, Wi-Fi (Wireless Fidelity Transmission), delivers high-speed Internet access at a lower cost than cellular. Wi-Fi has challenged the wireless industry as a major competitor in the race to capture dominant market share of the wireless data market.

Carriers and enterprises are digesting the implications of this new technology, analyzing how Wi-Fi *fits* within their strategic plans. Carriers are considering Wi-Fi impact to their target markets, applications and partnerships.<sup>6</sup> Enterprises are assessing Wi-Fi impact to their corporate networks. It is important to note that corporations have been using *private* Wi-Fi networks (called WLANs or wireless LANs) for years to connect users within an enterprise. Now WLAN providers plan to use the same technology to offer public access to wireless Internet services in a variety of high traffic "hot spots" (e.g. hotels, airports, conference centers – even bookstores and coffee shops).<sup>6</sup> Wi-Fi has piqued the interest and support of IT market-making companies such as IBM, Intel and Microsoft.

Wi-Fi integration into the corporate network will bring big changes from both technology and business perspectives. In order to achieve a robust wireless data network, corporate IT now must plan to overcome "hot spots" in public places and wireless LAN connectivity throughout the corporate campus.<sup>7</sup> This will require IT organizations to build-in the technology for seamless roaming between sub-nets without dropping data or having to re-authentication of its users.<sup>7</sup>

In the telecommunications industry, the sudden appearance of service "hot spots" has threatened to take potential customers off wireless carriers' networks and onto Wi-Fi networks for access to data. Carriers face an additional threat to their revenues as voice customers find their way onto Wi-Fi networks using VoIP (Voice over IP) run by non-telecom companies as Boingo, Gric and Cometa.

As a defensive step to prevent their enterprise customers defecting to Wi-Fi, wireless carriers are buying, designing and building out their infrastructure to give mobile users the ability to roam between wireless LANs and the WANs.<sup>7</sup> Carriers will eventually transition their network topology to what is becoming known as mesh networks that link users around the country in ad hoc peer-to-peer networks.<sup>7</sup>

The bottom-line here is that carriers must prepare for this wireless data revolution. Having the ability to overcome enterprise "hot spots" quickly, effectively and at a low price point will be a critical success component in the race. Failure to have a solution to expeditiously cure "hotspots" will give way to the Wi-Fi competition.

## **The Cost of Not Meeting In-Building Service Needs**

Gantry Group's study with 7 leading wireless carriers consistently revealed that *each* sales region on average is faced with at least 3-5 in-building service improvement requests from enterprise customers and prospects weekly, representing 156-260 requests annually. This customer request rate is expected to substantially increase as the demand for wireless enterprise data grows. To prove the business case, we can make the following conservative assumptions about *one* given wireless carrier's *regional market area*:

- 3 in-building service request weekly
- 1 out of 3 customers/prospects lost because in-building service need is not met
- 20 lines per enterprise
- an average annual revenue of \$1,200 per line
- 3-year service contract

This represents 52 lost enterprise business opportunities for a carrier's sales region, computing to \$3.74 million in lost gross enterprise revenue.

# Barriers to In-Building Market Entry

With such a compelling business case, it's surprising that carriers have historically been inhibited from pursuing wireless in-building service opportunities. The answer lies in the related cost investments and financial ROI justification process to fulfill the business opportunity.

## Costly Fulfillment Options

Until recently a carrier's engineering team had the following options available to them:

**Build a new cell tower** – this option typically costs the company over \$1 million and takes 1 year to deploy. The carrier's financial payback requirements and the enterprise customer's need for carrier responsiveness to their request are often both unfulfilled.

**Modify or enhance an existing cell site** – Such modifications cost the carrier on average \$150,000 - \$180,000 per cell site modification. The modification can take months to be accomplished. Once again, the carrier's financial payback requirements and the enterprise customer's need for carrier responsiveness to their request are often both unfulfilled.

**Purchase and deploy a wireless repeater** – Carriers also have the option of purchasing a wireless repeater that they directly purchase on behalf of their customer. Traditionally, such repeater technology cost \$40,000 - \$50,000, not taking into account set-up, installation, and on-going maintenance and support costs. These alternative systems require choice and purchase of cable and antennas. Carriers justify this infrastructure investment on behalf of their customer based upon the contract revenue opportunity from the customer.

## ROI Justification Process

So, let's now look at the sales opportunity case where a wireless carrier can win or retain a customer by fulfilling their stated in-building service requirements.

**Step 1: Engineering Assessment** - The carrier's engineering team first considers the service challenge at the prospect/customer's site. Multiple engineering approaches to a solution are reviewed and assessed for network impact, budget investment and deployment effort and required engineering resources. This step can typically take one (1) month.

**Step 2: Financial Justification** – With the engineering approach in hand, the carrier must make a financial justification to pursue the prospect/customer opportunity. Prior to any capital expenditure (e.g. enhancement to the carrier network or equipment to be installed at the enterprise customer site), the carrier turns to its financial group to run a ROI case justification on the investment under consideration. Wireless carriers interviewed during this study uniformly stated that on average it takes one (1) to three (3) months for the carrier to generate a ROI model that determines if they will pursue the enterprise opportunity. The ROI outcome must demonstrate that full capital recovery is achieved by the carrier within 12 months – the mandatory payback horizon. This forecast is made based upon the enterprise's number of lines forecast, annual revenue per line, operating margin, and length of contract. Most of these models contain fixed data for different business case scenarios. In the case of in-building solutions, the model is "hard-wired" for a \$40-\$50,000 capital expenditure on repeater technology.

Products such as SpotCell completely change the dynamics of this investment justification process. SpotCell's low price point (i.e. under \$3,000), under four hour deployment requirement, low maintenance requirements (i.e. "set it and forget it") and low engineering staff utilization completely changes the parameters of the carrier's ROI model, producing very different case outcomes.

Where carriers could only make a ROI justification for a repeater investment for enterprises with 100-110 lines, SpotCell can achieve ROI justification for accounts with 10 or less lines. This enables the carrier to pursue at least 10 times the enterprise opportunity than they would have historically.

## Wireless Repeater Shortcomings

Carriers have been deploying and servicing wireless repeaters for the past five years to boost in-building service for their enterprise customers. Interviews with carriers during this study produced a remarkably consistent list of shortcomings with these devices. While U.S. carriers have embraced the need for in-building wireless solutions, they have been faced with a number of issues that have impeded pervasive field deployment.

**High Equipment Cost** – Until SpotCell, wireless repeaters have typically cost \$40,000 - \$50,000, failing to meet the carrier's ROI model payback justification. This most often results in the carrier not being able to meet the enterprise customer's need and the carrier running the risk of losing the customer to a competing carrier. Carriers often prefer to make the direct investment in the in-building solution themselves, to avoid enterprise customer ownership of equipment that is interacting with the carrier's signal. This is a controversial point currently being debated by several carriers' legal departments. Carriers are at a crossroads on the issue of having enterprises contribute to the cost of improving network performance.

Therefore the carrier must make a ROI case for each enterprise customer considering an in-building equipment investment. This financial justification is usually based on the number of lines, annual revenue per line, level of service, and length of contract. Historically deployed in-building solutions are priced in the range of \$50,000 to \$100,000. This pricing level creates a "no win" situation whereby the carrier frequently cannot make the ROI case to support the equipment investment on behalf of the customer requesting in-building service. The enterprise customer is barred from a solution: they can't buy it themselves and they can't get the carrier to buy it for them. The carrier either gains an unhappy customer, or loses the customer opportunity all together.

**Difficult Procurement** – Wireless repeaters are typically configured as a number of individually ordered and installed components. Engineering, selecting and specifying the order - often from multiple suppliers - can be quite difficult and time consuming. This problem is compounded by general lack of responsiveness and proactive fulfillment management on the repeater vendor side. The carrier is left to bear the time and cost burden.

**Required Set-up** – The repeater units do not have the ability to automatically align to the network frequency automatically. Instead, the carrier's engineering team must tune the repeater unit during a set-up process.

**Difficult Installation** – Repeaters require multiple components to be assembled, installed and integrated. Often, one of these components requires rooftop access and installation. Installation for these repeaters can typically take 3 days of the carrier's engineering staff time.

**High Instance of Tuning throughout Lifecycle** – Wireless repeater technology often performs unpredictably after field installation. Carriers experience a high incidence of having to tune and adjust the repeater signal to the carrier's frequency in the field immediately following installation. This requires additional field service time – and costs – of the carrier's engineering staff.

Furthermore, the repeaters are often unable to sustain adequate performance in both rural and core urban, high density operating conditions. This makes the units an engineering and field service nightmare for carriers. Since installed in-building units are outside of the public network real-time monitoring and control, carriers' engineering groups must be assured that the unit will not be problematic or fail after deployment. Many in-building repeaters have failed to earn such confidence.

Wireless repeaters repeatedly require field attention to cure interference and feedback on the carrier's network. Again, this requires additional engineering field service time and costs, which becomes increasingly intolerable as repeater units propagate at enterprise customer sites. This is an absolutely unacceptable situation for any wireless carrier. This is readily the case for non-adaptive repeaters with high power requirements.

**High TCO Cost** – All this leads to a high TCO for the deployed repeater unit.

## The Next Generation: Adaptive Repeaters

Spotwave has created SpotCell, the next generation of wireless repeaters. SpotCell represents a new wireless technology category called *adaptive repeaters*. Adaptive means that SpotCell has built-in algorithms and intelligence to automatically adjust to changes in the carrier's network. SpotCell automatically sets the system gain and transmit power based on the received signal strength and available isolation. Adaptive algorithms enable automatic set-up.

Spotwave has changed the underlying dynamics of the in-building business model for carriers. They have delivered an affordable, fully adaptive, "out-of-the-box" solution for reliable, always-on wireless coverage. Wireless voice and data are always accessible - whether in a rural area or a densely populated core urban local. Minimally invasive, the entire SpotCell solution can be exclusively in-building, requiring no roof-top access for an exterior component. The SpotCell product family is designed to provide carriers with a simple solution that doesn't require any network upgrades or build-outs, virtually eliminating the problem of in-building dead zones for their customers.

Comparing SpotCell to the list of shortcomings of previous generation, non-adaptive repeaters:

**Low Equipment Cost** – SpotCell costs under \$3,000 (compared to \$40,000 - \$50,000)

**Easy Procurement** – SpotCell is a complete system with everything needed within in *one* box from *one* vendor. SpotCell is packaged in two components, the donor unit and the coverage unit, making order specification by the carrier's procurement department simple. Carriers interviewed by Gantry Group during this study unanimously applauded Spotwave for their responsiveness and rapid fulfillment practices.

**No Set-up** – Adaptive algorithms enable automatic set-up.

**Easy Installation** – SpotCell typically takes under 4 hours for a carrier to install, including travel time. The cost to the carrier for complete installation and installation verification is on average \$350 - \$500 per installation. Carriers find installation so simple that they have actually used non-engineering staff to successfully install SpotCell units.

**No Instance of Tuning throughout Lifecycle** – the 7 carriers interviewed during this study that are actively deploying SpotCell today reported no instance where tuning was required as immediate follow-up to field installation of a SpotCell unit. SpotCell's adaptive algorithms completely avoid the necessity of deploying engineering staff to the field to re-modulate the repeater unit. "Set it and forget it" is the shared mantra of carriers.

**Low TCO Cost** – All this leads to an extremely low TCO for the deployed SpotCell unit. On average, the TCO of a SpotCell unit over a 3-year deployment period, including the capital cost of the SpotCell unit itself, is under \$5,000.

## Improving Enterprise Sales With SpotCell

The wireless market is extremely competitive. Today, wireless carriers are using SpotCell to win new enterprise sales, retain existing customers, and overcome network performance problems. Leading carriers' sales teams have proven that conducting a consultative communications assessment with the enterprise prospect to determine their holistic communication needs, and determine the level of service required – indeed sells the most minutes.

In-building coverage is a required communications strategy component for any enterprise. The enterprise's physical business topology must be defined in terms of rooms, floors and buildings. Interviews with sales executives at leading wireless carriers revealed that SpotCell is helping them achieve their sales goals in the following ways:

**Winning New Enterprise Sales** – Interviews conducted by Gantry Group with leading U.S. wireless carriers revealed that in-building performance is a "top-of-mind" issue for most enterprise customers. For one of these leading U.S. wireless carriers, 85% of SpotCell recommendations are extended to new enterprise customers that have positioned an in-building solution as a key component to their carrier selection process. On average, the seven wireless carriers interviewed reported that at least 20% of new enterprise prospects initiated in-building coverage service discussions. Engineering and network organizations within carriers reported that there is a healthy demand for new customer in-building solution requests, averaging three (3) per week per local market area.

**Winning New Wireless Data Business** – Carriers unanimously concur that wireless data is their next *big* opportunity. Data devices have redefined the mobile worker. In-building service coverage is a growing issue due to wireless data adoption. SpotCell will be a key enabling technology for carriers to win business in this new wireless market.

**Improving the Point-of-Sale Environment** – Wireless carriers are deploying SpotCell to their branded retail outlets and to their retail channel partners' points of sale. In doing so, SpotCell improves the customer buying experience for both enterprise and consumer customers. Excellent network performance prevails whether in a shopping mall, office park, or high-rise building. Sales close rates in retail stores equipped with a SpotCell

solution have the potential of being higher with shortened sales cycles attributed to consistent performance. In addition, quality, uninterrupted wireless service is absolutely mandatory for online, in-store account activation.

**Retaining Current Enterprise Customers** – Poor customer loyalty is an unpleasant but ubiquitous characteristic of the wireless market. Enterprise customers are consistently open to reevaluating their wireless carrier choice at the end of the contract period. Carriers are using SpotCell effectively to “sweeten” the wireless service package with top quality in-building service. SpotCell’s low price point enables carriers to make the ROI case for the investment with much lower customer service usage minimums.

Carriers using SpotCell report a higher contract renewal rate among their enterprise customers. Since SpotCell is carrier specific, it creates a barrier for the customer to switching services.

In addition, leading carriers have initiated proactive customer care programs with top enterprise customers that assess and audit in-building performance. These carriers are prescribing in-building solutions like SpotCell to remedy possible future service dissatisfaction problems with these customers before they arise.

**Overcoming Customer Satisfaction Issues** – Enterprise customers have a low tolerance for poor wireless coverage and level of performance. Poor in-building performance can easily contribute to customer service issues. SpotCell is an ideal prescription for quickly healing dissatisfied customers due to its low price point, quick installation, low-profile footprint, and proven reliability.

## SpotCell Value Drivers: Carrier Engineering

SpotCell has been brand certified and approved by 20 leading wireless carriers in North America as the culmination of rigorous engineering assessment and review. RF Engineers consistently report the following key value points about the SpotCell solution:

**Low TCO** – Carriers consistently applaud SpotCell for its low TCO, achieved throughout the deployment timeline, from time of purchase through enterprise customer site deployment. Amortizing SpotCell equipment and installation costs over a 3-year period, annual TCO for a deployed and fully supported SpotCell unit averages \$1,500, based upon TCO profiling conducted with major wireless carriers by Gantry Group.

- **Excellent Technical Performance** – SpotCell has repeatedly demonstrated to leading carriers that it does not interfere with the network, staying on frequency at all times. Carriers trust SpotCell’s adaptive algorithms for setting power levels and seamless interoperability with the public network. SpotCell’s low power requirement, being one of the few sub 1-Watt repeater on the market, enables the unit to deliver quality signal amplification without creating signal feedback over the network.
- **Low Price Point** – The SpotCell solution is priced on a sliding scale of \$2,500 - \$3,500 per unit, depending upon the carrier’s volume purchase. With carriers’ current ROI financial models tuned to expect a \$40,000 - \$50,000 investment based upon past in-building solution experiences, the order of magnitude price drop for a SpotCell unit changes the entire business case for carriers. Network capital equipment budgets, a portion of which is earmarked for in-building solution, can be applied at least 10-times more effectively through resolution of more enterprise customers in-building service

needs. Low unit pricing, complemented by a sustained low TCO, is enabling carriers to now justify in-building solutions for their enterprise customers having as little as 7 to 8 lines.

- **Responsive Sales Support** – Spotwave responds to wireless carrier requests for quotes with quick turn-around, overseeing the sale to ensure quick time to delivery of SpotCell units. Carriers can count on Spotwave to be responsive to enterprise customer in-building service needs, thereby improving customer satisfaction and engaging the customer to expend wireless minutes sooner and at higher usage.
- **Excellent Spotwave Technical Support** – Spotwave’s technical support staff is readily available and always responsive to carriers’ RF Engineering and Network Performance organizations. Spotwave Technical Support partners with the wireless carrier for each SpotCell installation, ensuring quick, successful – and therefore low cost – deployment of their units.
- **Rapid, Easy Installation** – Carriers extend high accolades to SpotCell for ease of installation. “Set it and Forget It”, “Dummy Proof”, and “Plug & Play Installation” are representative feedback from carriers that Gantry Group gleaned from interviews with RF Engineers at leading carriers. SpotCell’s ability to self-optimize to the RF environment alleviates need for on-site adjustments and calibration. Demonstrating the simplicity of the installation, SpotCell has been successfully installed by non-engineering staff. Installations are accomplished in less than a half-day. SpotCell customer installations cost carriers \$350 - \$500, depending upon if the installation is performed by the carrier or outsourced to a 3<sup>rd</sup> party firm.
- **Reliable Field Performance** – Verification of installation rarely reveals issues. Post installation, carrier engineering organizations report that there is little to no cost for SpotCell units deployed to customer sites. Field costs for unit repair, tuning and adjustments, upgrades of unit, and other field maintenance typically does not exceed \$500 annually.

**Integrated Solution** – SpotCell is packaged as a single integrated component. SpotCell requires no roof-time access at the building site.

**Aesthetics of Unit** – Carriers and enterprise customers alike praise SpotCell for its integrated and low-profile packaging, allowing it to be non-intrusive within an enterprise office environment.

## SpotCell Value Drivers: Carrier Sales & Marketing

Enterprise customers assume that a wireless carrier will offer excellent in-building performance within their place of business. As one carrier sales director put it, “in-building service is an implied buying criterion 80% of time – prospects assume it will work.” Missing this expectation creates unhappy customers.

**Shadow Spot Prospects are Attainable Customers** – Every wireless carrier has areas in their network that deliver weak performance. These shadow spot areas can arise in rural areas or in high signal interference environments -- such as urban downtown areas, manufacturing floors or warehouses. High density, or core urban areas, represent more than 75% of the pent up enterprise market demand for reliable wireless data. Engineering and network groups simply cannot accommodate all these sales prospect situations with new cell sites or cell site modifications due to:

- **Cost** - Cell site modifications typically cost the carrier \$150,000 to \$180,000 per modification.
- **Time** - A new cell site takes at least one year to implement.
- **Resources** - Insufficient engineering/network resources to respond to all opportunities.

In the past, carrier sales teams simply needed to “pass” on such sales opportunities where excellent service was known not to be achievable. SpotCell changes this selling dynamic. Spotwave attacks “doubtful performance spots” competitors cannot afford to reach. With the total life cycle cost of SpotCell averaging below \$5,000, carriers can prescribe SpotCell as a long-term solution – not a temporary one – to overcoming network weak spots.

**Lead with Value Added Services** – Wireless carriers can best differentiate their offering through value added services. Carriers are creating value around coverage, with in-building service and “always on” wireless data access being two of the top coverage “hot spots”. SpotCell is ideally suited as a value added offering with ubiquitous appeal because of its low price, easy installation and simplicity of use.

**After Market Sales** - Adding SpotCell to the service portfolio lets the sales force retouch clients with a new offering.

## Conclusion

After aggregation and analysis of ROI profiles developed with leading carriers who have SpotCell deployments, Gantry Group concludes that Spotwave’s new adaptive wireless repeater technology not only brings a compellingly high ROI and unprecedented low TCO to in-building solutions, it will in fact serve as a critical enabling technology component in the emerging wireless data market. Overcoming enterprise “hotspots” will be required to achieve a seamless wireless network throughout the corporate campus. SpotCell’s low price point makes rapid deployment financially feasible. SpotCell’s adaptive intelligence leads to low field service requirements, making carrier support of a ubiquitous deployment of these units achievable.

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## **About The Gantry Group, LLC**

The Gantry Group is a strategic advisory and custom market intelligence firm. Gantry Group applies primary market research to help companies cost-effectively accelerate the successful market adoption of their products and services. Gantry Group has helped over 200 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. 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 assess the performance of their own companies.

Gantry Group's ROI & Customer Payback Practice 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 works with management teams in technology, financial/professional services, healthcare and life science sectors to *Sell with ROI*. The company can be reached at 978-371-7557 or [www.gantrygroup.com](http://www.gantrygroup.com).

## **About Spotwave Wireless Inc.**

Spotwave Wireless solves wireless coverage problems that challenge providers of voice and data services. Providing a coverage solution for both 800 MHz and 1900 MHz bands, Spotwave develops affordable in-building adaptive repeater products based on smart antenna technology and adaptive techniques to provide "always on" wireless coverage. By reducing the need for costly investments in equipment and engineering time to deploy reliable wireless coverage, Spotwave products are installed in various manufacturing, industry and retail locations in North America, China and South America.

For more information on Spotwave products, please contact Steve Adams, VP Marketing and Product Management at (613) 591-1662 x238 or visit [www.spotwave.com](http://www.spotwave.com).