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SkyBitz is the leading remote asset management solution provider, delivering real-time asset information through online services to customers in the fields of transportation, energy and government. SkyBitz delivers a reliable, easy-to-use solution that provides clear visibility to and assessment of remote assets anytime, anywhere. Throughout North America, more than 575 customers currently rely on cost-effective SkyBitz GLS technology to manage more than 160,000 assets to achieve total visibility, improve security, lower operating costs and capital spending, and enhance customer service.

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CSMG serves as a strategic advisor to SkyBitz, Inc.

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The Impact of Asset Management Technology on the Trucking Industry

Summary and Assessment

CSMG and SkyBitz conducted extensive primary and secondary research with North American trucking companies to evaluate the value created by remote asset management solutions. This report focuses exclusively on transporters and identifies issues critical to the trucking industry, demonstrates how remote asset management solutions can address these issues, and quantifies the specific benefits available to trucking companies through remote asset management solutions.

Remote asset management technology has proven to be very successful financially, with an average return on investment (ROI) that is significant both in quantity and speed. An ROI several times greater than initial deployment costs is typically achieved within 12 months of deployment. Remote asset management also provides a wide variety of benefits, including reduction in capital expenditures, fuel savings, efficiency improvements, lower trailer to tractor ratios, reductions in empty miles, security advantages, and new revenue generation opportunities. By providing both a conceptual and quantitative overview of these benefits, this study helps transporters understand the full value and significance of remote asset management solutions.

As the operating environment in the trucking industry grows more challenging, remote asset management solutions become critical to success. The flexibility and adaptability of these solutions drive more informed decision making and more streamlined operational processes as businesses seek to grow. In order to maximize both the quantitative and operational ROI, companies must integrate the benefits and information from remote asset management solutions into existing operations and business processes.

I. Remote Asset Management Solutions in the Trucking Industry

The US trucking industry is currently under pressure to maintain operating margins and increase revenue as operational challenges like high fuel costs and constrained capacity intensify. In this increasingly competitive environment, remote asset management technology has become a valuable tool that can optimize operations and create significant improvements in efficiency and financial stability. However, market research has shown that although asset management technology is becoming more mainstream, most users are not maximizing the technology's potential. This paper demonstrates that remote asset management solutions can significantly aid companies in battling the critical issues facing the trucking industry today.

Remote asset management solutions can provide the efficiency and cost savings critical to success in this increasingly difficult operating environment. Remote asset management for trailers essentially consists of installing an electronic asset tag on the trailer to transmit its location. Untethered asset technology, as offered by SkyBitz, utilizes asset tags that operate on batteries since connection to a power source cannot be relied upon. SkyBitz solutions have been used on an array of assets, including containers, mining equipment, frac tanks, ISA tanks, etc. In addition to transmitting the asset's location either on-demand or at scheduled times, SkyBitz intelligent sensors provide advanced monitoring of other asset conditions, such as the temperature of a refrigerated van and whether a trailer cargo door has been opened. For trucking companies, implementing remote resource management technology that tracks untethered assets like trailers can result in dramatic cost savings and efficiency improvements, as well as increased customer and driver satisfaction. In addition, remote asset management technology provides customers with the flexibility and adaptability to better manage the major issues in the trucking industry today.

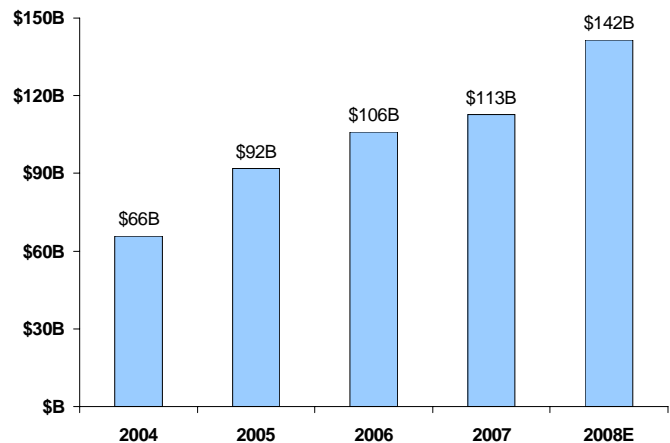
II. Major Issues for Today's Trucking Industry

Increased operating costs

By far the biggest challenge for the trucking industry today is the rising cost of fuel. According to the American Trucking Research Institute, the price of gas has more than quadrupled since 2002, while diesel has almost

doubled in the last 12 months¹. As fuel prices continue to fluctuate, companies must make significant changes to maintain operating margins.

Fig. 1: Trucking Industry's Annual Fuel Costs



The trucking industry's fuel costs have more than doubled since 2004.

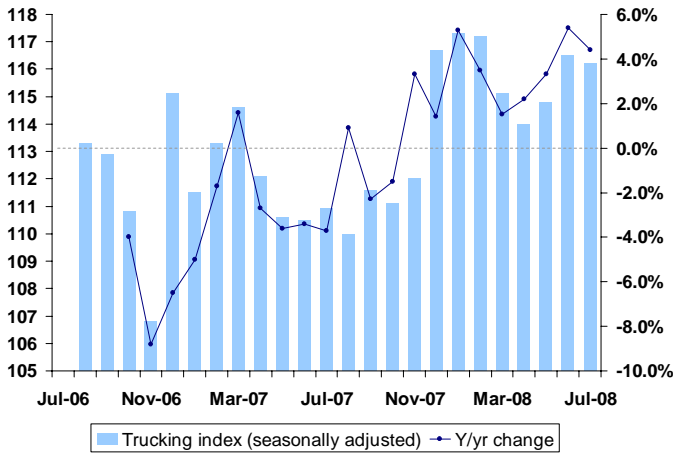
Source: American Trucking Association, CSMG Analysis

While some trucking companies pass these increased costs on to customers through fuel surcharges, they are usually unable to recover 100% of the increased cost due primarily to non-revenue generating or "empty" miles that cannot be billed to a customer. However, regardless of whether they levy fuel surcharges, all companies must focus on minimizing empty miles and maximizing efficiency to reduce fuel costs.

Increased fuel costs may also have a significant effect on freight rates. In recent years, as the economy slowed and freight tonnage decreased, many goods transportation carriers lowered freight rates to attract or retain customers. Major increases in operating costs, due primarily to higher fuel prices, make reduced freight rates unsustainable in the long term, even as freight volumes begin to rise.

¹ American Trucking Research Institute; American Trucking Association (2008)

Fig. 2: Seasonally Adjusted Trucking Tonnage Index



The monthly truck tonnage index began to rise in 2Q 2008. As freight volumes recover, capacity shortages and high operating costs will make current freight rates unsustainable.

Source: American Trucking Association, CSMG Analysis

Lastly, a rise in infrastructure congestion and constraints is expected. Currently, the top ten areas of traffic bottle necks account for over 11 million hours of truck delay every year.² As the trucking environment becomes more challenging, steps to reduce congestion, such as using remote asset management to reduce the number of non-revenue generating miles each tractor drives, as well as reduce the number of trailers needed through increased utilization, will become critical.

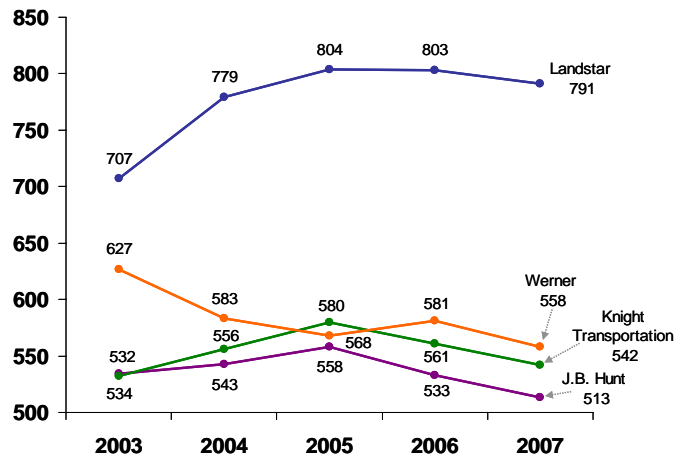
Change in shipping patterns

In addition to changes in operating costs, the operating environment for trucking is undergoing a major shift in shipping patterns. Rather than the decades old cross-country paradigm, in which a single truck moved a load from California to Virginia, the industry is moving towards a regional distribution center model with both shorter haul lengths and shorter time frames. For example, whereas a trailer load of freight historically left a plant in California on Monday and arrived at its destination in Virginia the following week, a trailer today is likely to leave the plant Monday morning, arrive at a distribution center Monday evening, and continue its journey through a network of centers and tractors, across the country. Therefore, today's tighter supply chains require better coordination and tracking of trailers independently from tractors to ensure that loads are moved correctly through a supply

² American Trucking Association (2008)

chain that is increasing in complexity.

Fig. 3: Average Length of Haul (Miles) by Company



The average length of haul has dropped across major carriers as companies move towards a regional distribution center model with leaner supply chains.

Source: SEC Filings, CSMG Analysis

Capacity constraints

Similarly, the rise in freight volumes and shift in shipping patterns can result in strained capacity in terms of both trailers and drivers. Although the majority of transporters have idle trailers, they are forced to lease additional trailers every year, partly because of seasonal changes in freight volumes and partly because carriers are unable to pinpoint how many unused trailers they have and where these trailers may be located. Moreover, trailers can sit idle on a lot for weeks or even months before they are identified as available for use. On the driver side, high turnover has been rampant in the industry for several years and, while it may decrease slightly as unemployment rises, is unlikely to change significantly. Furthermore, the rise in operating costs has resulted in more trucking companies going out of business – the last two years alone have seen over 2,000 trucking company failures.³ In an increasingly competitive environment with diminishing capacity, companies must work to increase productivity for both trailers and drivers in order to meet rising demand.

³ A.G. Edwards & Sons from ATA Standard Trucking and Transportation Statistics (Vol. 13.1)

Security and theft recovery

In addition to increased operational costs and tightening capacity, truckers also face the growing problem of cargo theft. At the moment, the FBI estimates that cargo theft costs the US at least \$10 billion, and possibly as much as \$30 billion, each year.⁴ As supply chains grow in complexity, entailing more interactions between multiple players, the risk of cargo theft and tampering rises. Increases in commodity prices have also elevated more loads to high-value status, prompting many shippers and goods owners to look to preventative security measures as the opportunity cost of losing even a single load increases. Furthermore, tightening national security regulations post-9/11 indicate that carriers with robust asset visibility and security systems are better able to compete at the forefront of any developments on both the cargo security and national security fronts.

The rise of third-party logistics firms (3PLs)

Finally, as the trucking industry becomes more competitive, some transporters are moving into the 3PL business in an effort to attain better supply chain management and greater integration into a customer's supply chain. Greater integration into a customer's supply chain leads, in turn, to greater customer stickiness, more stable revenue streams and, in some cases, increased efficiency. Warehousing in particular has efficiency implications as it allows transporters to decrease the number of less-than-truckloads they carry, thereby reducing fuel consumption and increasing utilization.

In addition to using greater asset visibility to optimize utilization and capacity, 3PLs also require interfacing with other operational and back-end systems to ensure coordination and delivery timelines. As 3PLs become more prominent and global, the need for better data integration with existing operational systems, as well as for integration across multiple providers' systems, rises in importance.

III. The Benefits of Remote Asset Management

Remote asset management plays a key role in allowing companies to cope with each of these issues, as well as overall efficiency and capacity improvements. In addition, remote asset management can greatly reduce a company's operational costs. By providing greater visibility into a company's existing fleet and optimizing utilization,

⁴ CBS News Interactive: FBI Crime Statistics (2007)

the SkyBitz solution significantly reduces trailer counts, and the corresponding trailer to tractor ratios. By increasing trailer utilization, companies essentially increase their cargo capacity without increasing capital spending on new trailer purchases. Moreover, the efficiency and security benefits from remote asset management solutions drive savings from decreased fuel usage by optimizing dispatch, as well as increased cargo security.

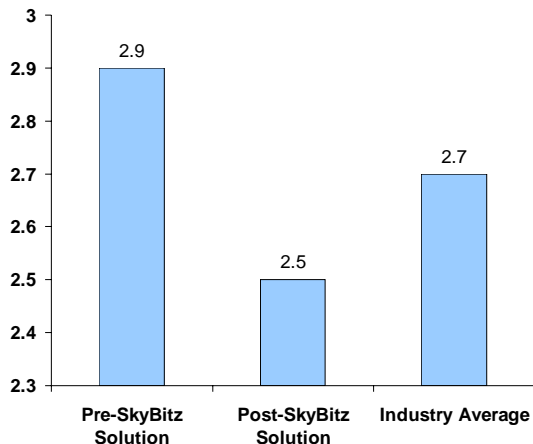
Internal operational benefits to trucking companies

Lower Trailer to Tractor Ratio

Based on interviews conducted with 25 for-hire fleets and industry experts, CSMG observed that for-hire fleets using SkyBitz solutions had a trailer to tractor ratio 0.2 points, or 8%, lower than the industry as a whole in 2007. In addition, SkyBitz customers saw average reductions of 15% in their trailer to tractor ratio (e.g. from 2.5 to 2.1) over a period of four years, although initial equipment efficiency results are noted within 6-12 months of deploying SkyBitz.⁵ Beyond improvements in trailer to tractor ratio though, SkyBitz can provide valuable efficiency improvements and equipment optimization across an entire fleet. For example, the SkyBitz remote asset management solution improves trailer tethering accuracy as drivers can pinpoint exactly which trailer to pick up and, in the case of an incorrect tether, drivers can respond promptly, avoiding wasted miles en route and trailer inventory imbalances. Furthermore, the SkyBitz solution optimizes equipment usage, and decreases the amount of equipment needed while simultaneously increasing a fleet's inherent capacity. For a typical 3,000 trailer fleet, this equates to a cost savings of \$19.8 million over a 5 year period in reduced trailer purchases, fewer trailer leases and rentals, lower trailer maintenance costs, and decreased tire purchases.

⁵ Average from SkyBitz customer interviews. Trailer purchase savings may take longer to materialize based on purchase cycles. Some customers have reported improvements of up to 20% in trailer to tractor ratio.

Fig. 4 Average Trailer to Tractor Ratio SkyBitz Customers versus Industry Average



Pre-SkyBitz data includes select customers' ratios before deploying the SkyBitz asset management solution. Post-SkyBitz data includes 2007 data from SkyBitz customers who have equipped 100% of their trailer fleet with the SkyBitz solution. Industry figure based on top 15 carriers by revenue in 2007.

Source: SkyBitz Customer Interviews, Transport Topics, CSMG Analysis

Fleet Size Reductions

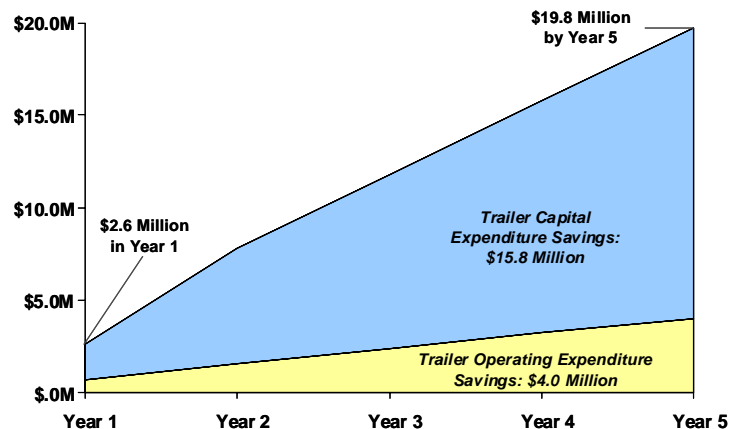
This decrease in trailer to tractor ratio also results in a reduced fleet size by increasing the utilization of each existing trailer. The visibility that a remote asset management solution provides allows customers to better use existing trailers that may have sat idle for days if not equipped with tracking capabilities to determine their status. Thus, remote asset management can increase a company's cargo capacity without increasing capital costs by eliminating the cost of buying additional trailers and reducing the number of leased trailers needed. For the typical SkyBitz customer, this equates to a reduction of 60% in the number of trailers rented every year and the elimination of the majority of new trailer purchases within 4-5 years.⁶ Given the rapidly escalating cost of trailers and other equipment, these reductions result in considerable operating and capital expenditure savings.

Even customers who have outfitted only portions of their fleet report significant changes. Numerous transporters noted that as drivers, dispatchers, and even end customers become more accustomed to the visibility and ease of using a trailer equipped with an asset management solution, usage of the non-equipped portions

⁶ Average from SkyBitz customer interviews. Some customers have seen rental/lease reductions as high as 70%.

of their fleets declines. From a driver and dispatcher perspective, for example, a SkyBitz-equipped trailer that transmits its exact location can be found in a fraction of the time used to find a trailer in a crowded yard. For customers, the visibility into an asset's progress provides an assurance of both security and supply.

Fig. 5: Five-Year Equipment Cost Savings across a 3,000 Trailer Fleet with Trailer Asset Management Solution



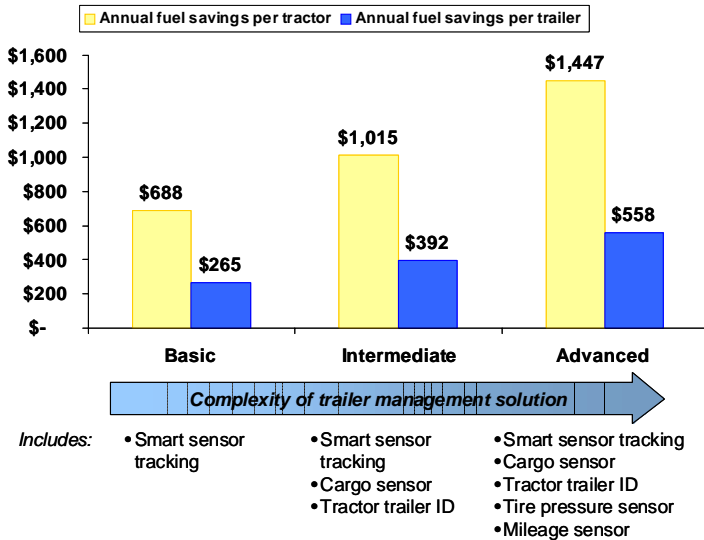
Based on 60% reduction in trailer rentals and elimination of incremental purchases by year 5. Operating expenditure includes savings from reduced trailer rentals and lower maintenance costs due to fewer preventative maintenances and improved tire pressure. Capital expenditure includes reduction in trailer and new tire purchases based on 3,000 trailer fleet buying 300 new trailers every year and renting/leasing an average of 300 trailers per month.

Source: SkyBitz customer interviews, CSMG Analysis

Fleet Dispatch Optimization

In addition to the considerable savings from equipment reductions, greater efficiency and dispatch localization also result in significant fuel savings across a trailer fleet. Using the SkyBitz solution, a dispatcher can direct a driver to the exact location of the next trailer to be picked up on a lot or a yard. In contrast, a company that doesn't use remote asset management technology can only tell a driver the last known location of a trailer, subject to human error, rather than an automated accurate position report. Upon arriving, a driver cannot be sure that the trailer is, in fact, there, and will waste both time and fuel in driving around the lot to find the specified trailer. In addition, remote asset management optimizes dispatch capabilities by allowing dispatchers to send tractors that are already in the vicinity of a shipment, or traveling in its direction, to collect a shipment rather than diverting a tractor miles out of its route. Typically, SkyBitz customers have seen reductions of 50% in driver time looking for trailers. Overall, annual fuel savings amount to \$1,447 per tractor.

Fig. 6: Annual Fuel Savings per Tractor or Trailer by Type of SkyBitz Trailer Asset Management Solution



Annual fuel savings based on diesel price of \$4.09 per gallon (2008 YTD average).

Source: SkyBitz, CSMG Analysis

SkyBitz equipment optimization provides valuable fuel savings related to maintenance practices. SkyBitz can optimize equipment function by monitoring and reporting trailer tire pressure in order to maintain optimum pressure, maximize fuel efficiency, increase safety, and lower maintenance costs. Similarly, SkyBitz allows for better dispatch and localization techniques that result in improved route efficiency and significant time and cost savings.

Total Security and Visibility

In addition to productivity and efficiency improvements, cargo security is an important issue for transporters, shippers and all other value chain players including governmental agencies. This is due to a number of different trends, including:

- The rise in the number of high-value loads being transported in the US,
- The move towards global supply chains in which a good may pass through multiple countries and multiple carriers before reaching its destination, thereby increasing the likelihood of tampering, and
- The need for homeland and international security and safety.

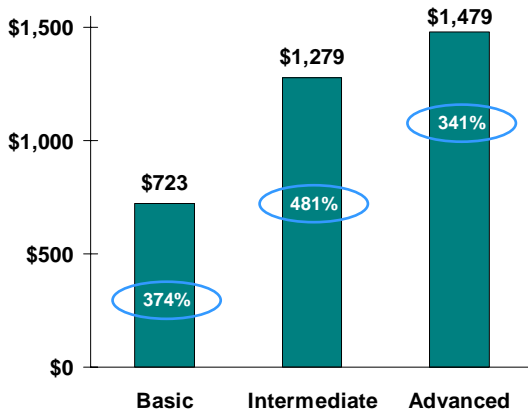
Remote asset management is thus a useful security tool

for carriers due to its ability to provide both preventative and reactive security measures. For example, a remote asset management solution with sensors, such as a cargo door sensor that immediately alerts users when a trailer door has been opened, or a tractor tethering sensor that alerts users when unknown tractors tether a trailer, enables users to respond quickly to prevent a theft or a potential national security threat from occurring. From a reactive standpoint, users can track the status and location of a trailer that has been stolen, diverted, or threatened to determine where and how it can be recovered. Although most SkyBitz customers use the remote asset management solution as a preventative measure, those that have had trailers stolen report recovery rates of 90-100%. One SkyBitz customer noted that it recovered its investment in remote asset management technology in three years on the reduction in stolen goods alone. Another SkyBitz customer was able to recover a load worth \$1 million within hours of its theft.

On-Time Diagnostics and Maintenance

Using remote asset management solutions, a company can reap significant efficiency benefits by moving towards a proactive approach to diagnostics and maintenance. Companies using the SkyBitz solution can schedule preventative maintenance based around actual utilization of an asset, thereby eliminating both unnecessary maintenance on equipment that has not been used, as well as overdue maintenance on equipment that has seen heavy usage. Users can also realize additional savings through early identification of potential equipment failure, allowing prompt action in such cases.

Fig. 7: Average Annual Return on Investment (% per \$ invested) by SkyBitz Trailer Asset Management Solution Type

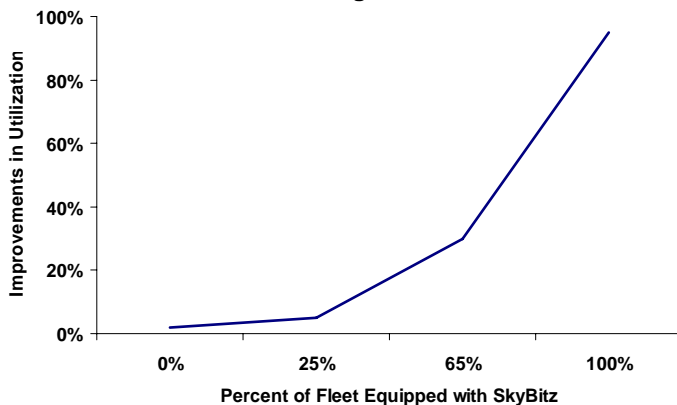


Basic solution is smart sensor tracking only. Intermediate solution incorporates smart sensor tracking, cargo sensor, and tractor trailer ID. Advanced solution includes all sensors (smart sensor, cargo, tractor trailer ID, tire pressure, and mileage).

Source: SkyBitz, CSMG Analysis

Overall, remote asset management solutions add significant internal operational and financial benefits, resulting in a rapid payback period and high return on investment. In the case of SkyBitz, customers typically see a return within the first 12 months, although this does depend on how fully a company implements the procedural and operational changes required to attain maximum benefit from remote asset management.

Fig 8: Trailer Fleet Utilization Improvements as a Function of Percent of Fleet Equipped with SkyBitz Trailer Asset Management Solution



Based on annual improvements in fleet utilization.

Source: CSMG Analysis

Ability to react to market trends

In addition to allowing companies to significantly reduce operational costs, remote asset management solutions enable transporters to gain a competitive advantage in terms of their ability to react to and capitalize on external market trends, such as integration with global supply chains, a shortage of drivers, and the rising cost of fuel.

Improved end-to-end supply chain management in a changing distribution model

As US shipping patterns shift to a distribution center-based shipping model, carriers that can provide asset visibility across a cargo's entire journey have a distinct competitive advantage. Using remote asset management solutions, transporters can convince customers that they are capable of competing in a market where supply chain visibility and flexibility are crucial. A remote asset management solution allows transporters to proactively monitor and identify any potential issues before they disrupt a company's supply chain. Furthermore, SkyBitz's InSight software uses a secure website that not only allows users across a global supply chain to access data from anywhere in the world but also simplifies IT responsibilities and financial costs. The InSight data are delivered in XML format and are consequently not platform-specific; thus, data from SkyBitz can be easily integrated into other operational systems from multiple providers.

In addition, remote asset management technology provides valuable customer service benefits in terms of greater security and visibility for high value and time-sensitive loads. As a result, equipment and cargo monitoring can be a valuable competitive differentiator for companies choosing providers for a lean supply chain as it assures the end customer of both the visibility and security of an asset, as well as the carrier's ability to promptly identify and respond to potential issues.

Ability to better manage the industry's driver shortage

Asset management solutions also provide benefits beyond customer service, such as improving employee satisfaction and aiding in mitigating the effects of high driver turnover and the chronic driver shortage affecting the trucking industry today. Firstly, SkyBitz reduces the number of man hours spent looking for cargo and trailers in a work week by an average of 50%, thereby increasing driver productivity and reducing the frustration associated with searching crowded yards for a trailer that may ultimately not even be there. Secondly, SkyBitz provides additional security to drivers as a secondary support system in situations when an in-cab GPS or cellular

wireless solution fails. Lastly, from a carrier perspective, SkyBitz's solution increases tractor and trailer utilization, thereby reducing the number of drivers needed, and allowing companies to better cope with the driver shortage.

However, the full value in remote resource management solutions does not come from the simple acquisition of the technology and products, but from its application in the business, including changes to operational processes and company decision making trees and procedures. In order to achieve the full benefits of a remote resource management solution, a company must not only deploy the technology and products across the entire fleet of assets but also must adopt new ways to conduct operations across all levels, including the C-level.

SkyBitz Solution ROI Case Study for a Mid-Sized Trucking Transporter

Company A is a long-haul dry goods truck hauler that owns 3,000 trailers and 1,111 tractors (trailer to tractor ratio of 2.7). The company purchases 300 new trailers per year and rents an average of 300 additional trailers every month based on seasonality. Company A is considering buying the SkyBitz solution but is concerned about the investment required. It has decided to examine the financial savings from deploying an advanced SkyBitz solution with smart sensor tracking, cargo sensor, tractor/trailer ID, mileage sensor, and tire pressure sensor.

I. Operating Expense (OpEx) Savings: \$9.7 million over 5 years

Company A will not install SkyBitz units on its leased trailers but will reduce the number of leased trailers by 60% within four years. In addition, by increasing utilization of existing trailers, Company A will decrease its trailer to tractor ratio by about 15% and will cut maintenance costs by moving to preventative maintenance. Finally, empty miles (and thus fuel consumption) will decrease as the number of man hours spent looking for trailer drops, the company implements fuel-less yard inventory, and drivers reduce out-of-route miles due to dispatch optimization.

II. Capital Spending (CapEx) Savings: \$15.7 million over 5 years

Company A will increase trailer utilization by 2% annually, thereby reducing the number of trailers it purchases every year. It will also see significant reductions in tire purchases due to using an automated tire pressure sensor on each trailer.

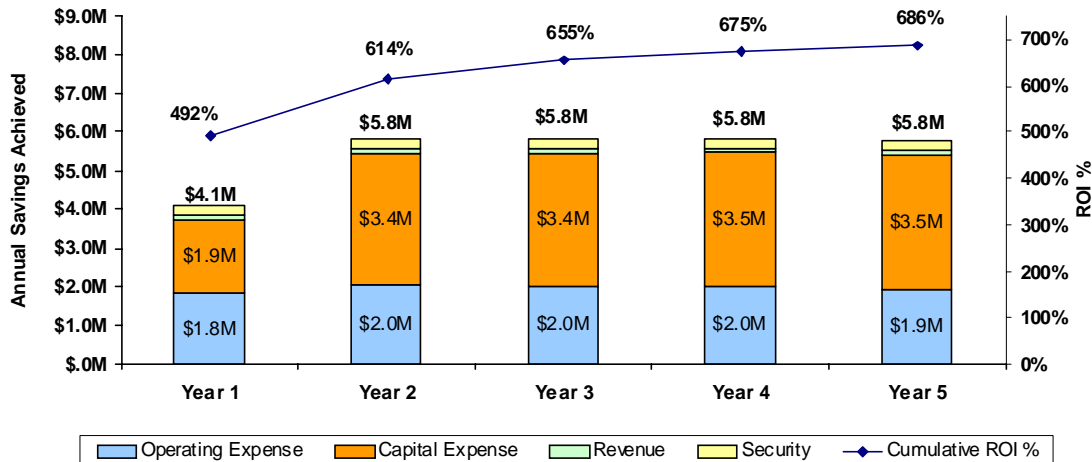
III. Security Savings: \$1.4 million over 5 years

Company A can now recover 95% of stolen loads and trailers.

IV. Revenue Increase: \$0.5 million over 5 years from detention billing only

Company A offers 3 free days to return equipment and charges detention fees of \$30 for each day a trailer is late. Customers generally return trailers 7 days late. Company A has also won several new accounts due to better customer service and security from its use of remote asset management, but has not counted these wins in its revenue increase.

Annual Savings by Category of ROI: \$27.3 Million Total Savings over 5 Years (Cumulative ROI of 686% per \$ Invested)



Source: CSMG and SkyBitz analysis

IV. Conclusion

Remote asset management, and the SkyBitz remote asset management solution in particular, have a direct impact on a company's profitability by providing clear financial and operational benefits through cost avoidance (capital and operating expense savings), efficiency improvements, and both preventative and reactive security measures. In the short-term, efficiency improvements that result from using the SkyBitz solution drive significant reductions in operating expenses, especially in terms of equipment costs and fuel savings, and improve a company's overall profitability. In the long term, the SkyBitz solution drives reductions in capital expenditures, freeing capital to grow the business. Remote asset management technology allows customers to not only enjoy significant capital and operational cost savings but also affords the opportunity to attract new revenue and compete in a changing industry with increasing information demands.

Remote asset management technology is a valuable competitive differentiator to provide better service to end customers and win business from companies that are slower to adopt the technology. Furthermore, long-term improved revenue potential and sales processes allow companies to compete for the growing number of customers with high-value or time-sensitive loads.

While remote asset management solutions change internal operational processes, they also affect customer and industry behavior. As the goods transportation ecosystem moves towards a focus on remote asset management, behavior will likely adapt to capitalize on these advantages (e.g., automated business processes, reduction in overdue equipment, elimination of staff time spent on manual logistics activities). Thus, remote asset management provides companies with the tools to compete more effectively in an increasingly challenging operating environment while enhancing profitability and customer service.

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