THE FOLLOWING IS AN EXECUTIVE WHITE PAPER ON:

CHAOS IN THE RETAIL COSMOS

Prepared by:

Tom Wimmer
Director, Automatic Identification and Data Collection Practice

Rory Gardner
Analyst, Automatic Identification and Data Collection Practice

JANUARY 2009

VDC research
Insight. Innovation. Results.

CHAOS IN THE RETAIL COSMOS

Investment in supply chain management technologies continues to enhance the efficiency of the retail supply chain. In parallel, retailers are mapping out the next generation of POS technology solutions. But the retail floor remains a virtual black hole, where merchandise can exist in any number of physical and virtual domains without retailers or their suppliers having visibility at any level of granularity beneath 'on the floor.' To continue to drive efficiency in retail operations and address the most significant revenue loss for retailers, this lack of inventory visibility must be addressed.

THE CURRENT ECONOMIC CLIMATE AND ITS EFFECT ON THE RETAIL VERTICAL MARKET

As the global economy continues to struggle through one of the most turbulent economic climates in history, adaptation has become imperative and imminent for all retail industry participants. 'Business as usual' no longer applies, and all stakeholder profiles in the retail community as we knew them – manufacturers, retailers and consumers – are relics of the past.

Over the last year and a half, consumers have had their confidence crippled by successive economic shock waves, beginning with the housing bubble burst, credit market paralysis, evaporation of 40% of more of their wealth, layoffs and ultimately, massive contraction of discretionary budgets. Consumer spending is experiencing the sharpest contraction in nearly eight years. Purchasing patterns and preferences have taken part in a forced migration from discretionary, wants-based spending to essential, logic-based purchases as consumers continually redefine their highest priorities.

Existing as they do on consumer spending, retail enterprises find themselves constrained financially and operationally by the radical changes in consumer spending and sentiment. And so, cost management and customer acquisition/retention strategies have moved far up the list of strategic and operational priorities for agile participants in the retail value chain. Retailers are under overwhelming pressure to discover and capitalize on opportunities to reduce costs, improve productivity, enhance customer satisfaction and create new sources of competitive differentiation.

Retailers are under overwhelming pressure to discover and capitalize on opportunities to reduce costs, improve productivity, enhance customer satisfaction and create new sources of competitive differentiation

Perhaps the greatest pressure – and potential for gain – is in better inventory management.

INVENTORY MANAGEMENT: THE NEW KILLER APP? AGAIN?

Detailed examination of most retailers' cost structure reveals clearly that the cost of those goods or services sold (AKA inventory) remains one of, if not, the most pressing items on the balance sheet. The ability to effectively and appropriately manage inventory evolves from a "best practice" to 'life or death' in times when every potential transaction is of the utmost importance. In a recession, when revenues decline, excellence in inventory management becomes the currency of the successful retailer, and inventory mismanagement in any capacity has the ability to devastate any retailer.

The documented challenges associated with inventory management have been exhausted during the past half century. We are all aware that an inventory surplus leads to underutilized capital and loss of profit, and that inventory shortages or stock-outs create customer attrition and their attendant loss of revenue and margin.

However, our awareness of much of this seems to fade when discussion arises surrounding the true strategic, financial and operational impact that mismanaged inventory has on an enterprise. We can all cite cash flow as reasons 1-5 on the list of inventory management investment drivers. But what else?

How does inventory affect merchandising/product placement? What effect does shrink really have? What is the immediate ticket value impact associated with misplaced goods? What is the long-term brand impact?

These are the challenges of inventory management on the retail floor. And while much ink has been spilled on the topic of inventory management during the past 50 years, most of the investments – in ink, time and capital – have targeted warehouses, distribution centers and stock rooms – making the retail floor the next frontier in the quest for excellence in inventory management.

In many ways, when compared to the larger supply chain, the retail floor remains significantly more chaotic from an inventory management perspective. Until retailers gain better control of inventory on the retail floor, they will be missing critical opportunities to reduce costs, enhance customer yield, and generate cash. Applying more order to retail floor inventory management will require at least item-level management, and in some cases, item-level intelligence. And those solutions will require RFID. Until retailers take advantage of the ability to track inventory on an item-level basis, the retail floor will remain shrouded in questions and ambiguity.

Until retailers take advantage of the ability to track inventory on an item-level basis, the retail floor will remain shrouded in questions and ambiguity.

Through this white paper, we hope to illustrate how retailers across a range of retail segments can, and in some instances are, solving problems and achieving gains in inventory management on the retail floor. In order to survive and thrive in the current economic environment – and with the emerging crop of hyper-discerning consumers – retailers must be focused on the 'here and now' and continue to invest in strategies, operations and systems that meet the requirements of both customers' balance sheets, and their own.

INVENTORY COSTS ARE DRIVEN BY STOCK-OUTS AND MORE. STOCK-OUTS ALONE COST RETAILERS TENS OF BILLIONS.

The current economic crisis presents a challenge to retailers: improve retail floor inventory management without missing current or future customer engagement opportunities. This challenge is forcing retailers to reexamine their operations at the most fundamental levels, ensuring that investments in technology and process reengineering are consistent with and supportive of their core strategic imperatives:

1. Enhance every customer and prospect experience
2. Maximize revenue in each customer interaction
3. Reduce costs

Reducing costs or serving customers better is not enough. Retailers must reduce operating expenses and enhance the customer experience simultaneously. This is the challenge facing retailers today.

Reducing costs or serving customers better is not enough. Retailers must reduce operating expenses and enhance the customer experience simultaneously. This is the challenge facing retailers today.

Discussions concerning operating expenses quickly become focused on inventory management. This is because improvements in inventory management can have an immediate and material impact on store sales and profitability. The major symptom of sub-optimized inventory management systems, and the place to begin the quest for excellence in inventory management is the stock-out. Defined simply, a stock-out occurs when the customer cannot find the product they need. Stock-outs are alleged to cost the retail industry upwards of $93 billion per year, and according to a global meta-analysis of retail stock-outs published by Emory University. The root causes of these events can more often than not be attributed to store operations, where mistakes in shelving merchandise, forecasting and ordering collectively account for 72% of stock-outs.

In other words, $60 billion may be lost due to stock-outs driven by issues rooted in retail floor inventory floor management.

The impact stock-outs have on customer behavior makes the retail floor inventory management issues even more acute, given today's economic environment, where customer retention trumps all else. When faced with a stock-out, customers may delay their purchase, shop elsewhere, or forego the purchase altogether. When purchase substitutions are made, they are more often made in favor of an alternative brand, adversely impacting the manufacturers who invested precious marketing budgets to reach that customer and drive them to purchase in the first place.

Further, stock-outs bring forecasting and planning systems out of alignment with customer preferences. How? These systems are driven by purchasing behavior rather than purchasing preferences in those instances where preferred products are unavailable. The cumulative result of repetitive stock-outs is customer attrition. Customers simply take their business elsewhere, and do so quickly.

There are many other operational implications to sub-optimal retail floor inventory management, but given the estimated cost of the stock-out problem, it may be enough to focus on just this issue first.

Why are stock-outs and the inventory management dilemmas they cause so common despite the billions of dollars retailers invest in retail automation systems?

To a large degree, the answer lies in those processes stores use to reconcile booked inventory with physical inventory. Traditional shop-floor inventory management processes continue to rely on discrete events to reconcile inventory. Too often these events are time consuming, manual exercises, requiring the deployment of human capital that should be deployed addressing customer needs and wants instead. As such, these critical events are typically scheduled infrequently and susceptible to error when they are performed.

Retailers who invest in retail automation technology to close this gap on the retail floor will materially improve operating margins while increasing customer loyalty. The key to these solutions is item-level management. We believe that the highest-performing solutions will include item level intelligence, and that these solutions will be enabled by item-level RFID.

ITEM-LEVEL MANAGEMENT AND INTELLIGENCE CAN CLOSE THE GAP. ORDER THE CHAOS.

Many retailers have already invested in item-level technology in the form of electronic article surveillance (EAS). For these retailers, the EAS infrastructure can be viewed as a platform for item-level RFID, which is increasingly integrated with EAS to combat shrink while providing a wide array of incremental benefits. These dual technology solutions are typically leveraged by a supporting infrastructure of RFID interrogators, middleware and enterprise software to provide real-time, item-level visibility on the shop floor.

Retailers who are investing in these solutions today are achieving fewer stock-outs, improving customer satisfaction and obtaining more accurate information regarding inventory on the retail-floor, which in turn drives better sales, forecasting, inventory management and, ultimately better cash utilization. But not all item-level RFID solutions are created equal and not all retail establishments will benefit to the same degree from item-level RFID.

Characteristics of item-level RFID installations with high-potential ROI include:

- Experimental design: Successful retailers reduce execution risk by working with a manageable, but representative number of SKUs. By grouping similar SKUs into control and item-level RFID enabled samples, retailers will have the means to directly compare and contrast the operational benefits derived from the pilot deployment.

- Staged deployments:
  - Many retailers are starting with higher-value items, expanding their SKU selection as the cost of item-level tagging comes down (An EPC Gen 2 compliant tag is currently cost-justified for items with and inherent value of $15.00 or more). High-turn items are also given careful consideration in many pilot deployments.
  - Other retailers are staging deployments by installation environment, leading with the retail floor and stockroom, with an eye toward eventually pushing the technology up the value chain with the cooperation of their trading partners to the warehouse and point of manufacture.
- Distributed real-time interrogation capability: thanks to advancements in reading technology, the cost of fitting or retrofitting a retail establishment to provide comprehensive real-time shop-floor visibility often outweighs the costs associated with deploying associates armed with handheld interrogators to sweep the store at regular intervals.
- Integrated planning: successful retailers ensure that the inventory management strategy is understood and supported by financial objectives, operational metrics and, ultimately, solution components. Beginning deployment of item-level RFID with clearly articulated objectives and associated benchmarks improves the likelihood of success.
- Executive sponsorship: senior management involvement is critical to success. The impact of item level visibility spans the entire executive suite and requires executive awareness and commitment.
- Explicit solution component and integration partner selection criteria: high-potential ROI projects are characterized by explicit articulation of required functionality and support capabilities – and a near-fanatical pursuit of achieving that performance as it the driver of ROI.
- The use of existing RFID infrastructure: dual technology tags can be used to combat shrink and to identify merchandise on the shop floor, eliminating the need for redundant tagging.
- Adherence to global standards: successful retailers take advantage of global standards for encoding and commissioning tags. Adopting the ISO 1800-6C standard provides scale for these retailers as they expand their pilots and add new trading partners to their program.

The future is a wired shop floor complemented by sensing technology, a platform for ubiquitous machine-to-machine computing in which human resources are dedicated to customer service, allowing sensors, readers, middleware and enterprise software to reconcile inventory in real time.

Leading retailers are adopting item-level RFID to varying degrees. Most retail floors are already wired, with POS, wireless networking and RF-enabled devices at high penetration levels today. The future is a wired shop floor complemented by sensing technology, a platform for ubiquitous machine-to-machine computing in which human resources are dedicated to customer service, allowing sensors, readers, middleware and enterprise software to reconcile inventory in real time.

RFID-enabled item level intelligence is a powerful capability being embraced by a small, but growing number of companies today.

FIGHTING THROUGH THE RHETORIC AND FEAR. ELIMINATING THE CHAOS

Although budgets for IT investment in 2009 are subjected to cuts, holds or freezes, forward-thinking retailers see certain retail automation investments as strategic imperatives. Despite the recession, and in some cases because of it, investments will be made in various inventory management solutions that provide rapid ROI through improved item-level management, with the opportunity to provide item-level intelligence as the solution scales.

Skeptics share a different perspective. For these retailers, the promise of item-level RFID is understood, but perceived execution risks place investments in the technology 'right around the corner.' Uncertainty regarding the implementation of source tagging has been a hurdle for retailers convinced that item-level intelligence is dependent on item tagging at the source of production.

While it is true that incremental benefits are accrued the farther up the value chain items are tagged, immediate benefits can be realized by those retailers who begin the process by the assuming responsibility and cost associated with item-level tagging. As the price per tag continues to decrease and the benefits to supply chain participants are proven, retailers will likely see increased willingness among their distribution partners to have a discussion about the feasibility of source tagging. This type of staged and informed collaboration is preferred to the mandate, which has actually hampered adoption of item-level RFID. Because mandates are one-sided propositions, they result in minimal investment in supporting infrastructure. Item-level intelligence is a lofty expectation of compliance-driven slap-and-ship processes. Those retailers who partner closely with their trading partners, funding the initial investment while sharing information have the most to gain. In these instances, source tagging will offer all stakeholders unprecedented visibility to inventory, enabling closer collaboration and improved execution in planning, distribution and merchandising.

This framework for adoption is paving the way toward item-level intelligence. The 'wait and see' mentality that has been so pervasive for the past decade is starting to wane. Retailers are no longer accepting the risks associated with continued reliance on sub-optimized inventory management systems. Those investing in item-level inventory management solutions are providing their manufacturing and distribution partners a glimpse into a future characterized by unprecedented supply chain visibility.

Once retailers have adequately addressed the issue of tagging, either at the source of production or in their own stockrooms, the next step is to focus on those use cases for the technology that will provide maximum value, targeting issues such as replenishment, receiving, POS, product search/availability, shrink, customer experience, etc. These decisions will inform solution specifications and the optimal placement of RFID technology and complementary hardware at each retail establishment. Although all installations are unique, the most commonly created read points include: shipping/receiving, egress (customer and employee), fitting rooms, employee-dedicated rooms, merchandising displays, and in-store shelving.

The item-level inventory management solutions deployed in the coming decade will differ, as the technical and commercial requirements driving these solutions will vary from one retailer to the next,and from one store to the next. Some retailers will see RFID as the core enabling technology; others will find a way to address their operational requirements using alternative technologies. Regardless of the technology deployed, the underlying currents pushing the industry toward item-level inventory management adoption are strong.

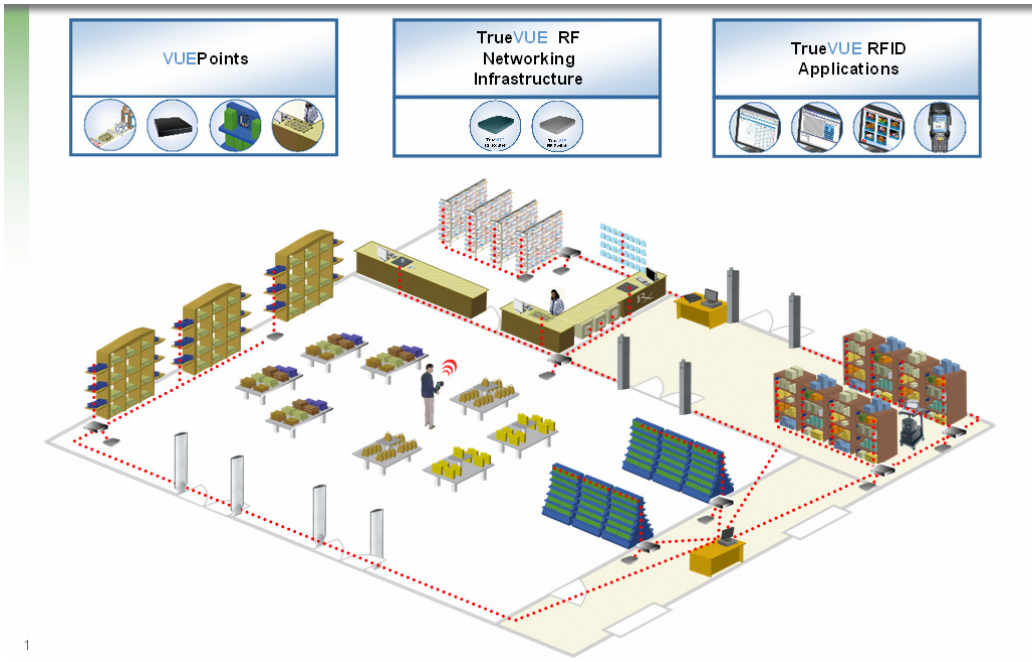
The current recession is accompanied by unprecedented access to information and product delivery alternatives. These developments are raising consumers' expectations, and retailers must meet them. Today's customer doesn't have the time or inclination to wait while a missing product is located, returning to the store at a later time to take delivery. The void created by sub-optimized inventory management systems and manifested by stock-outs needs to be filled with solutions that deliver item-level visibility and provide a platform for item-level intelligence.

The supplier community has heard the call for item-level management, and is responding by offering a variety of solutions that vary in sophistication and the benefits they provide. Partnering with a solution provider that understands the distinction between item-level management and item-level intelligence, and has a product portfolio and road map that reflects this understanding is critical. There is a laundry list of vendors who are capable of meeting retailers' immediate requirements for item-level management in a cost-effective manner. There is a shorter, but growing list of vendors capable of delivering a platform that scales, extending beyond the enterprise to provide item-level intelligence to retailers and their trading partners. One of these suppliers is Sensormatic. The company, well known for providing integrated retail automation solutions, recently acquired Vue Technology, Inc. Vue's item-level RFID technology includes a full software platform, RFID read points and RF networking devices to track inventory on a real-time basis.

SOLUTIONS READY TO ADDRESS THE NEXT GENERATION

Sensormatic offers retailers a turn-key item-level RFID solution comprised of hardware, middleware, application software, analytic software and consumables. The solution illustrated below depicts a retail establishment enabled by their solution. Read points interrogate tags throughout the retail establishment, providing real-time access to information regarding items on the retail floor. These interrogators are networked and supported by edgeware to identify, reconcile and commission inventory.

One of the most compelling aspects of this solution is the availability of a Web-based reporting tool and supporting analytic engine that makes information regarding what's happening on the retail floor available to other locations, including participating trading partners, providing a platform for item-level intelligence:



As the cost of tags and supporting infrastructure has decreased, the Vue platform is increasingly deployed to track other items deemed critical to customer retention. Retailers that offer high-margin items, such as consumer electronics, jewelry and haute couture have set the stage as the early adopters. Others are following suit, adding increased functionality to their solutions to provide their buyers and trading partners more than item-level visibility. These retailers are pursuing a new dream: item-level intelligence.

The term 'item-level intelligence' exemplifies the complete value proposition associated with item-level RFID. These solutions enhance visibility into inventory, meet compliance regulations/mandates, reduce shrink, improve supply chain efficiency and provide a source of differentiation. But what does that really mean for the organization from an operational standpoint? How do these systems raise the bar for all supply chain participants?

The term 'item-level intelligence' exemplifies the complete value proposition associated with item-level RFID. These solutions enhance visibility into inventory, meet compliance regulations/mandates, reduce shrink, improve supply chain efficiency and provide a source of differentiation.

The 'visibility' offered to retailers via these solutions has the ability to propel them to the next level of operational excellence. Simply stated, item-level intelligence provides retailers actionable information that is capable of enhancing business processes 'intelligently.' Retailers obtain a deeper understanding of their customers' purchase preferences, and are able to act swiftly and decidedly, investing in those SKUs that move and using the insights gathered at the point of purchase to inform the development of new products and services.

The result? Reduced chaos on the retail floor, more complete supply chain optimization, incremental revenue generation and increased customer satisfaction. Several enterprises across the globe are just beginning to bank the benefits associated with 'item-level intelligence.' Of those enterprises, Boekhandels Groep Nederland (BGN) and Karstadt offer two of the most compelling stories.

ITEM-LEVEL INTELLIGENCE: BEGINNING TO TAKE HOLD

Boekhandels Groep Nederland (BGN)

Currently operating forty-four stores in the Dutch market, Boekhandels Groep Nederland (BGN) has successfully completed RFID pilots in three of their stores and is poised to expand to several more stores in the coming year.

Currently operating forty-four stores in the Dutch market, Boekhandels Groep Nederland (BGN) has successfully completed RFID pilots in three of their stores and is poised to expand to several more stores in the coming year. BGN's interest in RFID began in early 2005, when the organization went in search of a solution that would allow them to improve inventory visibility and control, differentiate themselves from their competition, and improve their customers' experience. Since their initial investment in/deployment of item-level RFID built using Vue's TrueVUE RFID Platform, BGN is proud to announce that they have been able to achieve and surpass all of their strategic, operational and financial objectives.

Their main objective was to design and deploy a solution that would allow BGN's associates to know the precise location of all products carried by the retailer, ultimately empowering their customers with information and delivery choices. Despite the clarity of the goal, execution was a daunting task. BGN's operations are built around relationships with over 20,000 publishers, an enterprise inventory of more than five million titles, and store inventories ranging from between 200 to 300 thousand titles. In order to achieve their objective, BGN had to create and capitalize on several strategic relationships and partnerships.

Like all other item-level RFID implementations, the key success requirement to BGN's deployment was their ability to achieve tagging at the item level. By tagging products at the distribution center, BGN has been able to effectively track each item as it passes from warehouse to store with a UHF RFID tag. BGN had already established item-level tagging practices with their deployment of EAS, so item tagging with UHF RFID was the next logical step. The only material difference in implementing item-level RFID was the incremental cost associated with the RFID tag. BGN soon realized that the operational benefits associated with real-time visibility of items in their stores far outweighed the incremental costs associated with the dual-technology RFID tags.

Prior to outfitting their incoming inventory with RFID-enabled tags, BGN's shipments were received at the store and subject only to visual inspection. Prior to deployment, BGN was never able to ensure that shipments from the distribution center were complete when they arrived at the store. This process offered a very limited level of inventory visibility, resulting in frequent discrepancies between perceived and actual inventories.

Once the item reached the retail floor, BGN encountered several additional issues that plague almost all retailers. For starters, BGN had to improve their defenses against product shrink. Despite an infrastructure that supported EAS, BGN was only able to read tags as they passed through exits outfitted with EAS pedestals. The solution proved to be no match for motivated customers and employees, who simply removed the tags themselves or exited the store elsewhere. Secondly, BGN's associates frequently struggled to locate lost or misplaced inventory. In an effort to effectively reconcile booked inventory with physical inventory, BGN had to close stores for the bulk of a day once each month to scan all physical inventory; a truly daunting task for any store employee, and an expensive one for the enterprise.

Adoption of item-level RFID solutions has since allowed BGN to overcome these and several other documented issues. Inventory that once was lost on the retail floor can now be located immediately 97% of the time. Additionally, BGN is now able to locate items in their distribution center and stores in less than one minute. Further, BGN has introduced a semi-automated inventory replenishment system that is responsible for replenishing close to 75% of their inventory. No longer do employees rely on faulty inventory estimates to forecast demand. Gone too are the days spent reconciling inventory and searching in vain for misplaced items. BGN has also been able to expedite their physical inventory audit process to less than four hours. Deployment of three handheld RFID readers per store allows this inventory audit to occur in a quiet and unobtrusive manner during store hours without adversely impacting sales.

Armed with item-level intelligence, BGN was now in position to empower their customers with information and capture incremental revenue. The dreaded stock-out became the platform for value creation. When faced with a stock-out, BGN's sales associates can now inform the customer and offer them choices. This 'immediate order' capability allows customers to purchase a book at the store and have it delivered from the distribution center. This capability is currently supported by BGN's existing POS infrastructure and recently-deployed self-service kiosk solutions. This integrated solution provides incremental revenue, enabling the retailer to offer its customers real-time, multi-channel distribution capabilities.

Overall, the benefits associated with BGN's integration of item-level RFID have advanced operational efficiencies and procedures across the enterprise, resulting in material cost savings. Further, item-level intelligence is being used to address the other side of BGN's balance sheet. The immediate order capability empowered by item-level management is enhancing store revenues by almost 15% when compared to stores that are not outfitted with the technology, while markedly improving the customer's experience.

As item-level intelligence becomes more affordable, suppliers broaden their product and service offerings, and solutions are embraced at the enterprise level, BGN foresees the technology becoming an integral part of its long-term strategy.

Karstadt Wrehaus GmbH (Karstadt)

Renowned as one Europe's leading department stores, operating more than 90 department stores, 32 specialty sporting goods stores, and a real-time online store, Karstadt Wrehaus GmbH (Karstadt) has successfully completed a year of pilot testing for item-level RFID.

The retailer is planning on 'staying the course,' by further expanding their pilot programs.

Renowned as one Europe's leading department stores, operating more than 90 department stores, 32 specialty sporting goods stores, and a real-time online store, Karstadt Wrehaus GmbH (Karstadt) has successfully completed a year of pilot testing for item-level RFID. Karstadt's associates have experienced the first hand benefits associated item-level RFID. The retailer is planning on 'staying the course,' by further expanding their pilot programs.

Karstadt's interest in RFID began in early 2007, with one fundamental objective: customer retention. With over eight million enrolled in their customer loyalty programs, Karstadt interacts with an average of two-and-a-half million people a day. Maintaining relationships with these customers and growing Karstadt's share of wallet was considered fundamental to the retailer's customer-centric strategy.

Similar to other retailers, and consistent with the tenants of a high ROI item-level inventory management project, Karstadt approached the integration of item-level RFID with a staged, three-step deployment framework:

1. Invest the time and resources necessary to develop an integrated project plan, linking strategic, financial and operational objectives to solution requirements.
2. Obtain evidence that the integration of these solutions will fundamentally benefit the organization and its customers, achieving clearly articulated objectives.
3. Establish and execute the conditions associated with full-scale deployment on a section, store, then enterprise-level

Wrapping up a year of pilot testing, Karstadt finds themselves in step two and is quickly accelerating toward the third and final step – full-scale adoption. Karstadt's current pilot test is taking place in their Dusseldorf branch, with focus on their entire catalog of men's clothing. The pilot is currently tracking over 100,000 items with a replenishment cycle of four-to-five weeks.

Like BGN, Karstadt has been able to achieve some impressive results through item-level RFID due to their ability to tag items at their own distribution centers. Karstadt's inventory is currently tagged at their two fashion distribution centers and their central warehouse.

Karstadt's item-level visibility is ensured from their distribution centers to the point of sale due to their supporting RFID infrastructure. The Dusseldorf branch has outfitted their store with RFID readers at the shipping/receiving dock doors, handheld RFID readers for store associates, and item level intelligent read points throughout their displays provided by Sensormatic.

Since the beginning of their item-level RFID pilot, Karstadt's underlying goal was to obtain the information required to enhance operational efficiencies. Karstadt has indeed achieved this goal, and more. Item-level inventory management is providing Karstadt's associates real-time access to information essential to achieving excellence in operations and merchandising. Where is the product? How long has it been on the shelf? Are the shelves fully stocked? Which products are selling the fastest/slowest? These questions are now being answered decidedly and swiftly, and the retailer, its trading partners and customers are all benefiting.

Since the pilot began, all incoming shipments are received in eight minutes as opposed to the hour previously required. Along those same lines, physical inventory audits have been reduced from an hour and a half to twenty minutes. Associates receive updates regarding shelf inventory levels every ten minutes, drastically reducing the possibility of a stock-out.

Although these retailers began their projects with materially different objectives, they enjoyed many of the same benefits that can be achieved by deploying the technology in a thoughtful manner, with an eye toward achieving explicit objectives.

SUMMARY FINDINGS

As the economy contracts, retailers can no longer afford to continue to work around inventory uncertainties on the retail floor using antiquated technology and manual processes.

Karstadt and BGN are representative of a new breed of retailer, who understand the benefits item level intelligence can provide and use this capability to reduce inventory costs, improve planning, retain existing customers and win new business.

Karstadt and BGN are representative of a new breed of retailer, who understand the benefits item level intelligence can provide and use this capability to reduce inventory costs, improve planning, retain existing customers and win new business.

These retailers have overcome many of the barriers frequently cited by competitors for not investing in item-level RFID: the high cost of item-level tagging, the need for training and development, the lack of qualified integration partners, etc. They have done this by taking control of their own destiny and putting an infrastructure in place that meets their immediate item level visibility requirements and will scale as trading partners seek to participate and enjoy the incremental item-level intelligence benefits these systems can provide.

Further, aspects of each case speak to those characteristics of a high potential ROI project: experimental design, staged deployment, distributed sensing, integrated project planning, executive sponsorship, use of existing RF infrastructure and adherence to standards. Why did we select these retailers? They understand the item level management imperative, and the promise of item-level intelligence. They understand that retailers have the most at stake and the most to gain by investing in item-level management, and as such need to lead the initiative, focusing on internal processes and supporting systems with an eye toward scale and open system architecture.

Spectators can learn from their experience, but cannot afford to remain idle while the gap created by sub-optimized inventory management systems grows, and their customers' patience wanes.

Item-level inventory management is the next frontier. Item-level visibility is the immediate objective. Item-level intelligence is the end-game. Karstadt and BGN are playing this game and winning. Spectators can learn from their experience, but cannot afford to remain idle while the gap created by sub-optimized inventory management systems grows, and their customers' patience wanes.

ABOUT VDC RESEARCH GROUP

VDC Research Group (VDC) is a technology market research and strategy consulting firm that advises clients in a number of technology markets including: Automatic Identification and Data Collection, Embedded Hardware and Systems, Embedded Software and Tools, Industrial Automation and Control, Mobile and Wireless, and Power Conversion and Control. Using rigorous primary research and analysis techniques, the firm helps its clients identify, plan for, and capitalize on current and emerging market opportunities. We strive to deliver exceptional value to our clients by leveraging the considerable technical, operational, educational and professional experience of our research and consulting staff. During our nearly four decades of ongoing operation, we have had the pleasure of serving most of the world's leading technology companies, many high-profile start-ups, and numerous blue-chip early and later stage investors. Our products and services consist of research reports, annual research programs, and custom research and consulting services. Founded in 1971, the firm is located in the Boston area. Please visit our Web site at www.vdcresearch.com to learn more.

VDC Research Group, Inc.
679 Worcester Road | Suite 2 | Natick, MA 01760
T: 508.653.9000 | F: 508.653.9836 | E: info@vdcresearch.com | W: www.vdcresearch.com