Predictive Response to Combat Retail Shrink

By combining the statistical and mathematical rigor of advanced analytics with established business acumen and domain experience, retailers can ferret out and reduce shrinkage caused by fraud, non-compliance, poor processes and organized crime.

Executive Summary

Shrink, the unaccounted for inventory or cash lost in the retailer value chain, is among the key sore points in the retail industry. Retailers have used electronic article surveillance, reporting systems and a plethora of processes and policies to identify the biggest opportunities to control shrink. Yet most of these methods are reactive and tend to be inefficient, cost-wise. Rudimentary methods of shrink management have led retailers to consider or undertake more costly approaches.

At the same time, the sluggish economic recovery has forced these businesses to reduce headcount and do more with less. Not surprisingly, there is a growing need to utilize available data assets more effectively by building capabilities to more accurately report, analyze and predict shrink.

Analytics can help augment retailers’ abilities to interpret vast amounts of seemingly unrelated data from various sources and transform it into concise, actionable intelligence. This can enable retailers to become more proactive in countering shrink before it becomes a huge issue and dramatically impacts the bottom line. To take shrink-reduction programs to the next level, retailers must improve their business intelligence (BI) capabilities and embrace predictive analytics. An enterprise-wide information system that analyzes data to uncover and predict trends can help these companies increase revenue, reduce costs, improve processes and make quicker and more informed strategic decisions to detect and prevent shrink. Analytics provides a fresh way

Quick Take

The Cost of Shrink

- US$119 billion: Estimated global shrink.
- 1.45%: 2011 global shrink rate; up 6.6% from 2010.
- US$200: Global cost of shrink per family.

Source: Global Theft Barometer 2011
for retailers to effectively utilize available loss prevention (LP) personnel and resources, and help them do more without increasing costs.

Retailers have been “thinking” about using analytics for effective shrink reduction for too long; the time has come to use the gold mine of data that exists within their organization and explore the opportunities that it unravels.

The Old Adage: Increase Spending to Reduce Shrink

In a 2011 report, RSR Research found that the most common inhibitors to loss prevention (LP) initiatives are cost and return on investment (ROI) (see Figure 1). And according to a recent white paper by Professor Joshua Bamfield, Director of the Centre for Retail Research, retail shrink has a very strong relationship with money spent to counter it (see Figure 2).1 This is in line with one of the common retail notions that shrink reduction is a costly proposition. While this is true, retailers need to start looking at ways to overcome this obstacle.

Retailers are not just threatened by shrink alone; they also face the exorbitant costs of countering shrinking.2 To avoid this double jeopardy, retailers need to invest in better technologies that can help reduce shrink while not undermining an organization’s bottom line.

Current Challenges: Too Much to Do

Figure 3 (next page) illustrates the four broad categories of retail shrink and the multitude of challenges retailers face in identifying its root cause and developing a plan for reducing it. Traditional strategies that retailers follow are what we refer to as the “shrink cycle” (see Figure 4, next page). The shrink cycle starts with identifying potential shrink (typically conducted via periodic physical counts); analyzing the data manually to identify issues; further analyzing the issue to identify the root causes; implementing the measures to fix the root cause, then validating the results until the next physical counts in hopes of seeing positive results.

The time required to complete the whole shrink cycle is typically three to six months, which in today’s dynamic retail world is way too long. This is also evident in the 2011 RSR Research, where “lack of staff to review LP and audit data” was cited by retailers as the third biggest inhibitor to countering shrink.

How Analytics Can Help

Over the years, retailers have focused their investments on gathering data for analysis purposes; now, they face the increasingly difficult challenge of analyzing data and putting it to good use. By doing so, retailers can break the pattern of increasing LP spend to combat ever-increasing shrink dollars. Analytics can help retailers solve this problem and benefit in many ways:

- Reduce the time required to identify the root causes of shrink.
- Provide actionable data for preparing effective remediation plans.
- Provide factual data to develop effective strategies for utilizing resources in an efficient manner.
- Use predictive analytics to track the effect of remediation plans in near real time and react much faster than previously possible.
Developing an Effective Analytical Response

Getting to the end state where retailers can predict shrink is a long process; it requires a change in thinking, as well as the focus and support of senior management. We recommend a four-phase approach to reach the end goal (see Figure 5, next page).

- **Phase 1: Building the foundation.** Today, most retailers have started building the foundation as they collect volumes of data about various activities by customers, vendors or employees. However, retailers face major challenges in making sense of this data, which is critical to predicting and combating shrink. A strong foundation will include clean, consistent and complete data from across the organization, such as transactional data related to inventory movement; financial data related to inventory movement; master data associated with product, location, employees and loss prevention; and data elements like crime rates and employee theft rates, for example. It’s quite surprising that in today’s information age, retailers still struggle with the challenges posed by siloed information. To build a strong foundation, retailers need to break down these silos and bring all meaningful data onto a common platform.

The Path To Shrinkage Foresight

Figure 3

Categorizing Shrink

<table>
<thead>
<tr>
<th>Fraud</th>
<th>Non-compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Intentional malpractices committed internally (by staff), externally (by customers/suppliers) or collisions between these entities.</td>
<td>• Actions performed by staff that does not comply with the company’s rules or best practices, resulting in loss for the company.</td>
</tr>
<tr>
<td>• Each event accounting for a small amount of money.</td>
<td>• May result from lack of knowledge/knowhow on the rules established.</td>
</tr>
<tr>
<td>• Dishonesty at work.</td>
<td>• Lack of standardization of policies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processes and Policies</th>
<th>Organized Retail Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Administrative/operational mistakes committed by the retailer’s staff.</td>
<td>• Professional activity to steal and sell merchandise.</td>
</tr>
<tr>
<td>• Small amounts involved and are mostly involuntary events.</td>
<td>• Large amount, less frequent events, typically in a short duration of time.</td>
</tr>
</tbody>
</table>

Figure 4

Advance Analytics
- Develop linear regression models to predict shrink
- Enhance and improve the modeling tools by incorporating additional shrink variables

Analytics and Exception Reporting
- Run standard analytics by slicing and dicing the data
- Gather intelligence around factors affecting shrink
- Use developed KPIs to identify exceptions
- Generate exception reports

Reporting & KPI Development
- Generate periodic reports based on the collected data
- Develop KPIs to measure the performance against acceptable standards
- Sample KPIs should include transaction voids, damage claims, unauthorized, discounting, suspended transactions and price override

Capture Transactional Data
- Capture and maintain accurate inventory data
- Capture all exceptional events
- Define strong processes around all store transactions

Display the Path To Shrinkage Foresight to illustrate the process and key steps.
• **Phase 2: Understanding data and developing internal benchmarks.** Over the last few years retailers have begun to track and measure key performance indicators (KPIs). KPIs are a good way to aggregate data, and compare and benchmark against industry standards. KPIs provide retailers with a “data lens” through which they can monitor processes in an effective manner. Looking at processes in this way gives retail organizations an initial understanding of where the company stands, which can then be used for establishing goals and planning for the future. However, planning based on KPIs is fairly reactive in nature.

Building KPIs is the first step in reducing the time from identification of shrink to identifying the issues. KPIs can easily help identify the products, departments and stores that are causing more shrink than others. A retailer trying to develop the right KPIs should identify the process that needs to be monitored, then confirm specific KPIs to monitor. For example, to monitor issues related to vendor credits, retailers should look at KPIs such as credits-to-purchase and credits-to-sales ratios for each vendor, at each location, at each SKU level. These KPIs can then be rolled up or down at different levels for effective analysis.

• **Phase 3: Developing insight.** The fact that many retailers now use business intelligence tools represents great progress for the industry. For instance, retailers now use BI tools and active monitoring of exceptions at receiving and cash registers. These tools have provided retailers with insights that can be used to respond and control shrink.

However, the potential of these tools is still not tapped completely. More often than not, they are being used by retailers for creating static reports with huge volumes of data. Our experience has shown that there are many better ways to utilize BI tools. Rather than creating huge statistical reports listing various activities and metrics, retailers can use BI tools to build actionable dashboards. Such dashboards can be built to utilize analytics for spotting common trends across products and stores, or to provide limited, actionable and meaningful information for the field teams.

For example, while researching issues related to vendor credits, an analytical application can easily compare credit rates across different stores and vendors and create a list of outliers. The LP analyst can then work with field teams to identify specific issues and create an action plan.

Using analytics reduces the time needed to identify the occurrences of shrink and the reasons behind them. However, a lag remains in gathering data and then analyzing...
it to compare outcomes with KPIs to identify causation issues — making this approach an inherently reactive model.

- **Phase 4: Advanced analytics and predictive shrink.** Predictive analytics is a branch of mathematics and statistics that looks for patterns in data and makes inferences on future outcomes. Predictive analytics in the framework of a business intelligence application uncovers relationships and patterns within large volumes of data that can be used to predict behaviors and events. The core of predictive analytics relies on capturing relationships between causal factors and how they connect with data from past occurrences, and exploiting it to predict future outcomes.

Predictive analytics is the key to transitioning from reactive reporting to proactive insight. By applying statistical techniques, the drivers of business outcomes can be identified more clearly, along with more precise estimates of how they affect those outcomes. Predictive analytics can help retailers optimize existing processes, better understand customer behavior, identify unexpected opportunities and anticipate problems before they happen.

The core of predictive analytics relies on capturing relationships between explanatory variables such as sales-to-return ratios, employee overrides, on-hand quantity adjustments at different levels of product/location hierarchy and the predicted variables (i.e., shrink). These relationships are then translated into a predictive model that “listens” for outcome changes and patterns in the explanatory variables to forecast shrink at any point in time. For example, in the case of vendor credits, a predictive model will be able to identify increases in credits and adjust the predicted shrink — giving an early insight so the associated parties can react proactively to control the damage.

**Looking Ahead**

Retailers can benefit substantially by adopting a new competitive discipline in the form of predictive analytics, which uses quantitative methods to derive actionable insights from the wealth of data they now have at their disposal. In recent times, structured transactional data and unstructured data such as police incident reports, LP case documents and employee feedback have increased the data available for analysis by

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**Quick Take**

**Shrink Cheat Sheet (Part III)**

- Ask critical questions, such as threshold and acceptable value for KPIs and benchmarks tracked.
- Measure and analyze how the KPIs relate to the cause of shrink.
- Identify the outlier and conduct field research to first validate the reasons for the outlier, then collect feedback on the exact causes and remedies for the exceptions.
- The need for predicting shrink is data and also how that data connects with the causes of shrink.

**Quick Take**

**Shrink Cheat Sheet (Part IV)**

Use the understanding developed in Phase 3 to start building predictive models:

- Identify and use the data elements as the dependent variables (causes) to predict future outcomes (shrink).
- Start with predicting small subsets; continue to refine the models and clean the underlying data elements to increase prediction accuracy.
leaps and bounds. The immediate priority and challenge for retailers is to manage and benefit from the quantum of available data, and to devise ways of delivering data-driven insights.

The power of analytics lies in a balanced approach. This means combining statistical and mathematical rigor with business acumen and, most important, with domain experience. Very few retailers have applied predictive analytics to shrink reduction. Getting to the next stage won't be easy. It will require extensive process analysis and time to achieve predictive accuracy. However, retailers that exploit the opportunities presented by advanced analytics will emerge stronger — with a sustainable advantage.

Footnotes


2 Global Theft Barometer 2011.

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