Retail Risk Management and Asset Protection

When using big data and analytics for security purposes, it is important for loss prevention practitioners to understand foundational issues. Following are some common analytical methods and data handling procedures often used to tackle problems.

Measure Impact

A large part of executing new ideas in retail and loss prevention involves trial and error. Someone in the organization has a good loss prevention idea, but is not sure if it will work. If the idea is good enough, an executive will sponsor an in-store pilot test of the idea to determine its viability. Then the test is completed, and results are measured. If the results show that the test was successful, the program can move ahead.

Analytics and statistics are used in selecting pilot stores, structuring the test period, and conducting the analysis. The best general strategy for selecting stores is to use a complete randomization. This can be as easy as putting the store list into Excel, assigning a random number to each store, and then picking the top stores for the study. Following traditional statistical approaches for designed experiments and A/B testing will go a long way in setting up the experiments so that the results are defensible.

Use Available Data

Some retailers have used data to find relationships between those data points and shrink using multiple regression models. These variables may include, for example, store sales, employee tenure, crime in the surrounding area, the number of public cameras, the presence of a security guard, the number of apprehensions, manager tenure, training programs, store survey results, and metrics based on point of sale data to determine whether any are related to shrink.

Once the data is collected, statistical analysts will apply typical model-building procedures, which include cleaning the data, transforming predictor variables for optimal response, and fitting the algorithms using statistical software.

Exception Reporting

Most exception reporting systems combine data from the point of sale, employee records, item files, and store files into a single system that a loss prevention professional uses to find cases. These systems generally follow a query-based set of rules, which are historically known to identify a reasonable concentration of fraudulent and abusive individuals. Using these types of systems allows investigators to identify many actionable cases in a short amount of time.

Predictive Modeling and Scoring

Everything we do generates data and, thanks to the advent of big data, hundreds of predictions from models (often called scores) are calculated for every individual based on his or her past behavior in a wide array of industries. These scores, in turn, provide a likelihood of some future behavior, which can be used to drive anything from marketing decisions to banking decisions to crime prevention decisions. According to Intel, the highest value of big data is achieved through predictive modeling, which is applied using advanced techniques to predict future events and drive decisions in real time.

From a loss prevention viewpoint, predictive modeling involves performing statistical analyses that may uncover trends in the underlying risks that may indicate the likelihood of future loss. It also anticipates future behavior and improves strategic planning. For example, it can identify how an institution can effectively and deliberately target certain suspect employees, high-risk locations, and high-risk products—leading to a more efficient loss prevention process.

Video Analytics

The standard barriers to video analytics—excessive bandwidth needs, immature analytics software, high cost, and privacy concerns—are being whittled away over time and are likely to dissolve at some point. Big data tools are nearing a cost-effective state, bandwidths are continually increasing, and computing platforms can handle the massive amounts of computations. In less than a decade, centralized video storage and analytics are likely to be the norm for loss prevention.

Social Media Data

With the proliferation of social media through such services as Twitter, Facebook, and LinkedIn, there has been an explosion of data available to solve a variety of problems. It is often surprising how much individuals reveal, in a very public way, about their activities. These data sources have been incorporated in investigations to support retailers' efforts to catch and prosecute serial offenders.
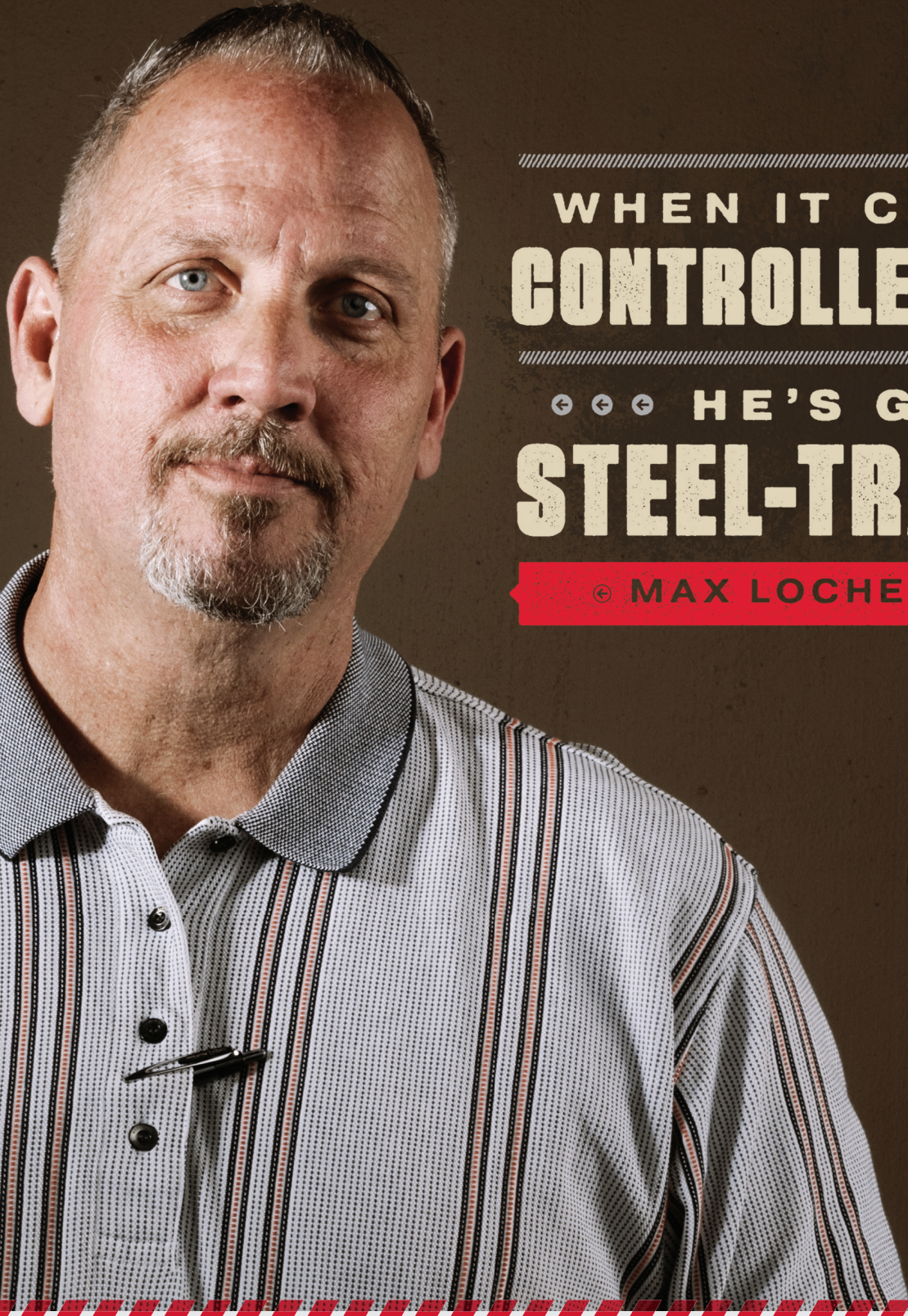
While there has been some use of this data, it is not being mined to its full potential. For example, if retailers could use social media postings in a proactive way to thwart, mitigate, and respond to crime earlier, this could result in tremendous savings.

The use of analytics and predictive modeling is a critical component in the future of loss prevention. The ability to assess patterns in data, measure loss prevention programs, and make decisions in real time will become fundamental in solving complex issues related to customers, sales, and loss. As criminals become more sophisticated, they will always target areas of weakness.

Loss prevention leaders should begin discussions, internally and with external partners, to create an infrastructure that can bring significant value to the organization through the use of data and analytical methods.