



Leveraging Video Analytics Throughout West 49

When I first joined West 49, I was tasked with building a resource protection (RP) department from the ground up right out of the gate. In the first year I started pulling together an RP team that would provide support to the stores and established the core department functions (see box).

Among the many issues that needed attention, following were some of the key initiatives we started with:

- Development of an RP reporting deck with our IT department,
- Launch of a whistleblower-type hotline in collaboration with human resources,
- Update of the company policy-and-procedure manual,
- Establishment of basic prevention training to be incorporated into the new-hire induction program,
- Launch of a store audit and target store program for high-risk locations, and
- Building a case for DVR installations in stores across the country. While all of these initiatives were important, deployment of DVRs was one of the most important and is the primary focus of this article.

West 49 Resource Protection Department Core Functions

Training— Target store program; e-learning series on external theft, internal theft, and shrink management; WebEx-hosted employee training workshops; newsletters; recognition-rewards program; store audits; integrity shopping program.

Investigation— Theft; refund fraud; discount abuse; misuse of petty cash; cash over or short; missing deposits; gift-card fraud; payroll fraud; sweethearting. Use of DVRs— Internal investigations; shoplifting and organized groups; video audit of bag check; fitting room control; customer service.

Compliance— Store policy-and-procedure compliance; execution of store operational controls; ensuring legislative and legal compliance; privacy legislation; stewardship programs; PCI compliance.

Store Services— Supporting stores with incidents that are reported; handling requests for RP systems and equipment; electronic article tagging systems; digital video recorders; fire inspections and prevention; alarm updates; keys; coordination of security requirements for new stores, relocations, and expansions.

Establishing ROI

In the first year I was given capital to deploy five DVR installations. This doesn't sound like much, but it was my opportunity to show our company's senior management the tremendous benefits of this technology.

After the first year, leveraging the system for internal investigations, having the public-view monitors as a shoplifting deterrent, and showing how dramatically the shrink results had improved got me a few more installations approved for the second year. Another successful year proved the return on investment (ROI), and it was at this point that I gained full buy-in from top executives, which meant DVRs were incorporated as a "standard" in the construction model for every future new store, relocation, and renovation. This was a big win, and I was able to get continued funding for DVR deployment in the high-risk, target store locations.

We rallied the stores to wage war against their shrink. We gave them a specific store strategy each year, and it has worked. In 2010 we achieved the lowest shrink result in over seven years that is 36 percent lower than the reported average for the men's and women's apparel segments.

Now our challenge is to maintain these results, and we are digging in our heels by maintaining the controls, training, audits, and processes that got us to this point. It's been a challenge to get our shrink to an acceptable level because at West 49, we employ the highest risk demographic for internal theft. We do experience a high degree of collusion, sweethearting, and product theft by dishonest employees. To combat this, my goal has been to attain a level of investigational resources that includes exception reporting and DVR analytics integrated with our POS. I am hoping to achieve this strategic goal within the next year.

Adding Analytics

Between 2009 and 2010 the company upgraded the merchandising and POS system to JDA software. This change triggered a shift in our organization because JDA immediately enhanced our data visibility and allowed us to optimize our business processes. The merchandise and planning side of our business was able to manage inventory more effectively and run more effective promotions. It was like the light was switched on for a lot of people, and we experienced a culture shift where information in real time became king. JDA created an opportunity for cross-functional teams to work together, and the value in that is truly appreciated. We have been working together to maximize every opportunity.

Interdepartmental collaboration is key. You must build a business case that demonstrates ROI beyond the LP benefits. Any time technology spending can be leveraged for multiple areas of the business it gets attention and support. My best tip for anyone trying to achieve buy-in for the technology you wish to implement is to provide an overview of the key business benefits to a wider audience. Provide operations, marketing and advertising, IT, and merchandise planning executives with specific examples that clearly demonstrate how the system can be used to impact sales, gross margin, and operational controls.

Having the kind of headspace the new POS system provided meant the timing was right for our company to leverage video analytics. I knew that DVR systems went way beyond the benefits for theft prevention and investigation; that the system could provide valuable business insights to our organization. The goal became to update our DVRs to include video analytics with the help of my vendor-partner i3 International.

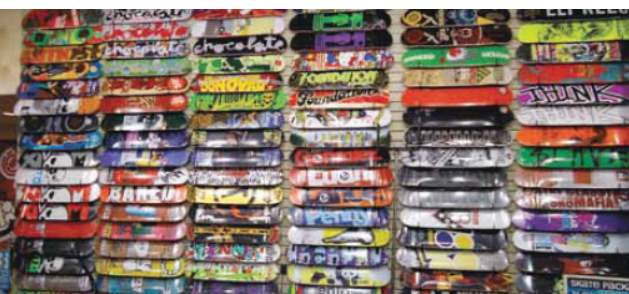
When Bill Prentice from Checkpoint and Vy Hoang and Brent Humphrey from i3 International joined me to introduce the capabilities of DVR analytics to these other areas of the business, we didn't talk about the LP benefits. Instead, LP was more like a footnote in that conversation. We discussed the sorts of business information that these other business areas would be most interested in.

Targeting the benefits of this system for multiple departments helps get the buy-in from executives, and also helps elevate the perception of LP within the organization by showing that LP is a business operations group that gives information that provides valuable insight into the business and helps make the company more profitable.

Thirty-seven of our 134 stores currently have DVR systems, twenty of which are i3 systems. We are in the process of converting the remaining seventeen stores to i3 DVRs and will update all existing locations to include the i3 analytics software. We know that this initial investment will bring both immediate and long-term cross-functional benefits that will help us drive and improve our top-line sales. Following this initial rollout and update, every future store DVR implementation in new, relocated, renovated, and target store locations will include the analytics.

Key Business Benefits of Video Analytics

There are a number of important benefits that will be derived throughout the organization from implementing DVR analytics. Following are some of the highlights by business area. Store Opera-



West 49 inc. is a leading Canadian multi-banner specialty retailer of apparel, footwear, accessories, and equipment related to skateboarding, snowboarding, and surfing, as well as the music industry. The company's stores, which are primarily mall-based, carry a variety of high-performance, premium brand name, and private-label products that fulfill the lifestyle needs of identified target markets, primarily active tweens and teens. West 49 Inc. is a division of Billabong International Ltd and operates under the banners West 49, Billabong, Amnesia, Arsenic, and D-Tox.

tions. In the short term, we will focus on the traffic-conversion aspect of DVR analytics. It's our initial focus because it is the quickest win as it is easy to support operations with the implementation and a clear ROI will be simple to calculate (see sidebar "Applying Traffic Counting Analytics" on page 46).

In the long term and with POS integration, we have the opportunity to leverage the DVR analytics as a multi-dimensional retail tool (MDRT). I have borrowed this term from my colleague and friend, Andrew Buchanan at Mark's Work Wearhouse. It's been a great way to convey DVR benefits to all of the department silos within our retail team.

People Counting. Store operations will be able to leverage people count aspect of video analytics for traffic-conversion data. The data will help to identify, confirm, and improve what we know about proper sales floor coverage and employee productivity. A new metric will be added to our arsenal of sales KPIs thanks to this tool, which will enable the store operations team to drive sales and maximize their payroll budgets.

Today, we know sales for each store, but we have no idea how many customers came in and did not make a purchase. With traffic con-

version we can challenge store performance levels and make necessary changes to improve sales-conversion percentages.

One of the primary benefits of the analytics software is that it is smart enough to know the difference between harmless motion, such as a poster swaying, and threatening motions, such as a person approaching a secure area. From a traffic-counting standpoint, it will distinguish the direction of human movement, which allows us to have a clean customer traffic count of those who entered our store, without falsely including the exit of the customer to our count, which can happen with traditional beam-sensor technology.

We can also use video to demonstrate the service behavior that works versus the behavior that shows opportunity for improvement. For days where conversion is low, we can spot-check customer service and provide JPEG photos or video segments to demonstrate that

- Service was great, but the product didn't compel the customer to buy today or
- Service was not optimal and therefore impacted the customer's shopping experience at our store.

Applying Traffic Counting Analytics

There are three key components in traffic intelligence:

1. The number of customers who visit the store (TRAFFIC) x
2. The number who buy (CONVERSION RATIO) x
3. The amount of money they spend (AVERAGE TRANSACTION VALUE).

If looking for a total sales increase, one of these components must increase. We cannot change what we cannot measure, so leveraging traffic-count data means we can accurately measure what components increased and the size of the opportunity. Traffic counters and analytics alone do not increase sales. The information provided by DVR analytics must drive strategic actions that result in increased sales. Our store operations group plans to take actions such as:

- Incorporating the traffic-conversion data into the daily store sales reports to district managers,
- Including the data into weekly store calls and executive summaries,
- Tying traffic conversion KPIs into monthly management bonus program, and
- Addressing poor conversion results and leveraging DVR footage to identify performance issues at the specific time a dip in conversion occurred, such as observing employees tasking rather than approaching customers.

Full Year	Traffic	Transactions	Conversion	APT	Sales
Current	203,148	37,176	18.3%	\$61.74	\$2,295,061
Strategy	203,148	41,239	20.3%	\$61.74	\$2,545,887
Difference	-	4,063	+2.0%	-	+\$250,826

In the one-store example above, 2 percent conversion lift means the potential top-line sales increase at this location is \$250,826. That's a potential 10.9 percent increase in sales. From a traffic-conversion standpoint, this works out to be approximately seven more customers serviced per day.

To determine the net gain for this store location, we must take the gross profit increase to the bottom line and subtract the total incremental costs. The incremental costs would include:

- Additional payroll due to sales increase,
- Incentive payouts (\$ for MAX payouts),
- Cost of stock (% GM), and
- Cost of DVR program for the location.

Starting out with thirty-seven of our stores, we've estimated our potential net gain from this strategy to be \$3.1 million in the first year of deployment. In a worse-case scenario, where we were only able to achieve a 1 percent lift in traffic conversion, it would still represent a \$1.2 million net gain for our company.

That's an amazing prospect when you consider this value is coming from DVR technology that is traditionally considered "loss prevention technology." It totally changes the kind of value that loss prevention can bring to the entire organization. To me, it's a no-brainer that this approach, with this technology, is a win-win.

These real store examples can make a huge impact on building associate training, customer awareness, and positive selling behaviors.

Dwell Time. With the POS integration, operations can leverage human recognition aspect of video analytics to assess customer dwell time and sales conversion by department. For example, in our shoe department if we confirm the number of customers visiting that section, how long the customers linger, and compare that to our shoe sales at the register, then we can confirm if our conversion rate was good, or if adding better sales coverage in the department would help increase shoe department sales at the register.

In another example, we could leverage dwell-time information to determine how long customers had to wait in line before they were cashed out.

We can also tie the DVR traffic information into our updated time-and-attendance system. Once the HR system update is completed, we will have the ability to layer traffic count into its scheduling function. The traffic conversion data can help to define the store schedule, even to the level of identifying which departments require a focused coverage based on the dwell-time information.

Marketing and Advertising. In the short term, marketing and advertising will be able to leverage people count aspect of video analytics to confirm if their campaigns resulted in a lift in foot traffic. Marketing and advertising wants to confirm if there was a spike in traffic and/or sales after an advertisement is run to determine whether or not a particular marketing campaign pays off.

They are also interested in using basic traffic conversions to determine if television, radio, or billboard campaigns had any impact on the volume of customer traffic to a specific region or during a specific time period. Today, they can only rely on sales data to confirm if their campaign was a success. However, sales results alone are not a true or complete measurement for their success. They may have successfully increased foot traffic to the location, however, there may not have been a significant sales lift because allocation levels were poor or customer service was poor.

These factors are a concern to our business, but the lift in traffic to the store tells us that the marketing campaign was actually a success. In the long term and with POS integration to our DVR software, marketing and advertising could leverage human recognition aspect of video analytics to assess customer dwell time and sales conversion by department. This would enable them to confirm that their marketing campaign did impact customer traffic and flow to the area of promotional focus within the store and that the customers shopping in those areas converted to additional sales at the register.

Merchandising and Planning. In the long term, planning and visual merchandising groups will be able to leverage human recognition aspect of video analytics to see where customers are going in the

store and how long they are staying in at fixtures, tables, and specific areas of the store. They can use dwell-time analytics to guide higher margin goods to the fixtures or areas of the store where customers spend the majority of their time.

This benefit will take longer to coordinate and establish parameters for reporting so that decisions to remerchandise can be made quickly to impact sales. What may be the end result is a proven footprint of fixture placement for high-margin goods in our stores. This could potentially influence the type of visual displays we create, confirm if hanging or folding product is more effective in getting customers to linger longer, and identify what is attracting them to the area. If we aren't converting in certain areas, we can determine the reason why, such as price point, sizes, color options, customer service, or other issues.

Resource Protection. In the short term, video analytics will allow us to identify and investigate issues quickly, which will greatly increase our recoveries and reduce ongoing loss. Another benefit is the ability to detect possible training deficiencies before the mistakes get out of hand.

We will use the missing-object capabilities of DVR analytics on our high-ticket items, such as watches, sunglasses, and headphones. Because our environment is tricky, this object-removal feature will take some time to develop.

In the long term and with POS integration to our DVR software, our resource protection organization can also leverage human recognition to set up specific areas for heat-mapping detection, which flags transactions where the customer is not present. We will also be able to leverage POS text overlay to help identify issues with employee collusion, such as free-bagging, where more product is passed off to an accomplice than is rung through the register. This type of theft is a huge risk in our retail environment, which we do not currently have the ability to identify unless we have the benefit of a witness to tip us off on the activity.



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