Inventory Shrinkage In A Chain Retailer- A Case Study

Salah Yousif El Sheikh

B.Sc. Pharmacy, University of Alexandria, 1988

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Salah

Student # 230069833

Executive Summary

Inventory shrinkage is a costly issue that confront retailers all over the world as it diminish their profitability. While many researchers have studied this phenomenon at an industrial level in general, however, only a few researchers have documented their findings based on store level. The retail study at store level can help better understand the operational parameters in a detail for making suitable practical suggestions to combat inventory shrink and that is the reason a case study is chosen as a method to examine and analyze inventory shrinkage in depth at a retail outlet level.

Almost all researchers work available in literature classified shrink into four types; external theft (Shoplifting), internal theft caused by bad employees, administrative errors and vendor dishonesty. It is reported in most of the findings that external and internal theft constitutes the major part of the total shrink. The rest of the shrink occurs due to administrative errors or/and vendor dishonesty. In the literature it was also reported that merchandise theft was the major contributor to the shrink and that is the reason it is the focus of this study. Factors influencing theft have been examined from operational aspect, which encompasses staff density and productivity metrics, and from human resources aspect, more specifically employee mix and employee turn over rate.

The findings of the case study indicated that as staff decreased, theft related numbers increased. On the other hand, variation in staff mix and employee turnover rate was also found to be directly related to the variation of theft figures. Based on the findings of the case study a reasonable set of loss prevention measures have been proposed to prevent shrink.

Introduction

Definitions and Background

Inventory shrink in retail stores is defined as the dollar amount lost as a result of a discrepancy between the value of inventory recorded or received on the system versus the value of inventory physically available in the store for sale (Retail Council of Canada, 2003). It means what is physically on the shelves versus what is paid for and should be in stock. This dollar variance in inventory value describes how much merchandise is no longer available for sale (Retail Council of Canada, 2003).

As per Steven May (2007), retail shrink is a combination of employee theft, shoplifting, vender fraud, and administrative error. It was 1.54% of annual sales in 2004 and it was increased to 1.6% of annual sales in 2005.

Inventory shrinkage has been classified in various ways and one of the common classifications is based on origin of shrink, such as shrink due to external causes, and the shrink due to internal causes. External causes include customer theft, organised crime rings (theft for profit), vendor dishonesty or/and administrative errors. While internal causes include employee theft, administrative errors and/or system failure (Bamfield, 2004). However, the most common causes of shrink according to significance in terms of $ amount are: employee theft, customer theft, administrative errors (paperwork errors), and vendor dishonesty.

The employee theft was found to be the largest cause of shrinkage in retail industry, followed by customer theft (May, 2007). Retail Council of Canada (2003) reported that employee theft contributes 40%, customer theft 35%, and administrative errors and vender dishonesty contributed almost 25% of the total annual shrink. The shrink percentage reported by Retail Council of Canada is shown in the figure 1.

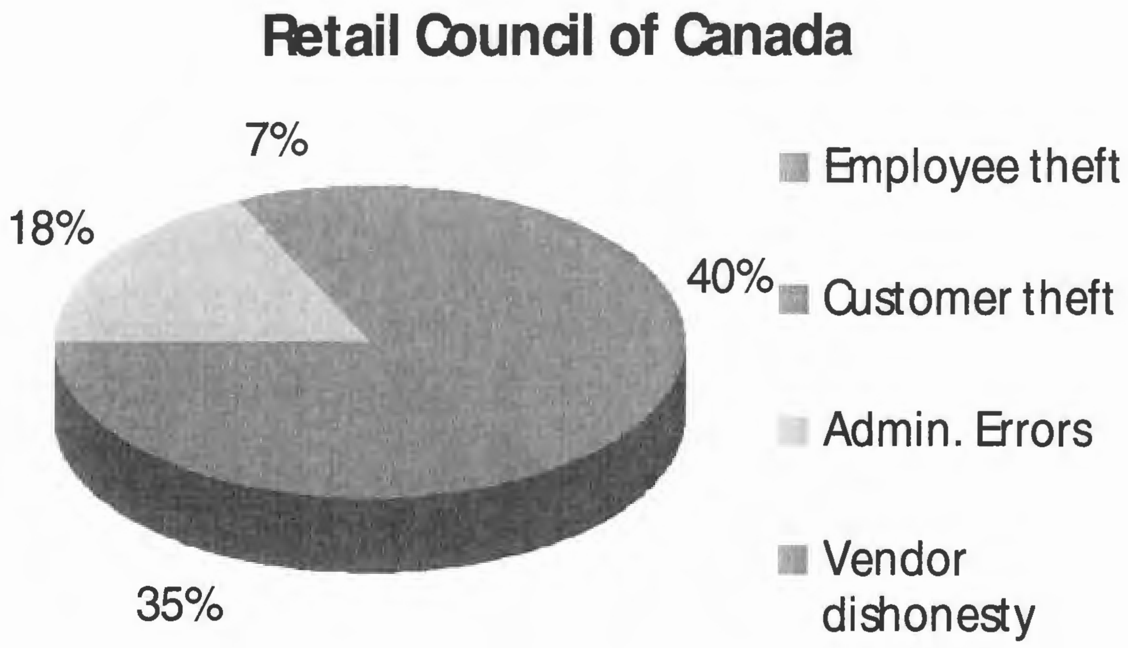

Figure 1. Causes of Retail Shrink (Source: Retail Council of Canada, 2003)

For the purpose of this study, merchandise shrink is studied in depth on annual basis using a case study of a retail outlet. Accounting and credit cards frauds, robbery, vandalism, terrorism, etc, were excluded to keep the focus on real inventory shrink.

Merchandise shrink is usually assessed annually by a third party where a physical count is performed in one day to ensure continuity of the count and to eliminate any errors arising from store sales activities. After counting all merchandise on shelves and in stock room, the count is prepared and then compared to the store's system generated numbers for creating discrepancy reports to determine the dollar amount which represents the loss in inventory.

Shrinkage is usually expressed as a percentage of sales. The Centre for Retail Research (CRR 2007) reported that retail shrinkage in 17 countries in Western Europe was about 1.23% of annual retail sales in 2006, while seven Central European countries experienced shrinkage rate of 1.35% in 2006. In USA, the average retail shrinkage rate in 2007 increased to 1.52% from 1.49% in 2006 (Center for Retail Research, 2007). The same increasing trend is observed in Canadian retailers where shrinkage rate has increased to 1.49% in 2007 from 1.43% in 2006 an equivalent of $3.63 billion loss of retailers' inventory in 2007 (Center for Retail Research, 2007).

Retailers continue to suffer losses in inventories as a result of internal and external theft. This loss has impacts not only on retailers but also on customers as higher prices are charged to customers by retailers. In addition, the government also incurs lost revenues from potential sale taxes (Retail Council of Canada report, 2003). This is why the study related to the inventory shrink in retail outlets became the top priority for this project. This project may be helpful to retail management in to understand the operational aspect inventory shrink. The understanding of the operational aspect inventory shrink may be helpful to management to devise the operational plugs that may help reduce the inventory shrinkage and thus helping boost the bottom line of the retail outlets.

Objectives of the study

Despite large investments by retailers in preventative training and technology, inventory shrinkage continues to be a complex problem in retail industry and it requires a multifaceted approach. The following are the important objectives of this case study:

a) Assessment of the annual shrink in the retail outlet using its in-house data.
b) Assessment of operational aspects that encourage shrink to occur (operational factors).
c) Designing operational mechanism to reduce/ prevent shrink

This work entails reasonable analysis of inventory shrink in its various forms and then contributing factors are examined to discover the ways to prevent or minimize the external and internal thefts.

Primary data related to the shrink is collected from the retail outlet selected for the case study. In addition, secondary data is also gathered from other secondary sources of information such as, literature review, Statistics Canada and other related publications. The analysis of data provided the information about the annual inventory shrink over the last five years with special reference to external and internal theft. Employee theft was also explored through literature review and findings were correlated to data collected from the actual operation of the case study. In depth investigation was carried on external theft, influencing factors, procedural leaks, theft techniques and then suitable loss prevention recommendations were derived based on findings.

The analysis of the data related to the case study may be helpful to provide information to retail outlets to prevent or minimize inventory shrink. Therefore, the outcome of the case study is documented in the form of a project report for the benefit of researchers who would like to work in this area in future. However, the utmost care has been taken not to disclose the store specific confidential information.

Literature Review

Definition & Classification

Inventory shrinkage is defined as the dollar loss incurred when there is a variance between merchandise currently on hand for sale and recorded merchandise received (RCC report, 2003). It means what is physically on the shelves versus what is paid for and should be in stock. The difference describes how much merchandise is no longer available for sale,(RCC report,2003). Steven May (2007) defined 'Retail shrink' is a combination of employee theft, shoplifting, vender fraud and administrative error. It was found to be 1.54% of annual sales in 2004, increased to 1.6% in 2005, and in these four causes 'employee theft' was the largest source of shrink in retail (May, 2007). According to Canadian retailer's statistics, an approximate cost of $8 million per day is reported lost in retail industry across the country (Retail Council of Canada, 2003).

The disappearance of these assets is attributed to a combination of internal and external factors, such as: customer theft, employee theft, administrative errors, and vendor dishonesty. As per Retail Council of Canada (2003) report customer theft accounted for 35%, employee theft 40%, administration errors 18%, and vender dishonesty 7%.

The issue of merchandise shrinkage is a complex and it requires a multi-directional approach to handle it even though large investments have been made by retailers in preventative training and technology. The monetary loss caused by inventory shrinkage is high and it negatively impacting retailers, consumers and government. As per Retail Council of Canada report (2003), "Merchandise shrinkage is an issue not only affecting retailers but also equates to lost tax revenue for government, and price increase for Canadians". The report also shows a dramatic rise in the impact of organized theft rings.

Over 17 percent of overall losses are attributed to the groups of professional thieves who steal for profit.

Shrink or shrinkage can be classified in different ways; for example; criminal based shrink which involves unlawful acts to gain possession of merchandise, or non-criminal based shrink that occurs as a result of system failure, employee carelessness, and training issues (Bamfield, 2004). The shortfalls of the definition of 'shrink' are numerous, as criminal acts such as frauds, cash stealing, accounting manipulations, etc, are not included under the umbrella of inventory shrink.

Joshua Bamfield (2004) provided another classification based on causes. The external and the internal causes of theft. The external causes are customer theft, organised crime rings (Theft for profit), vendor dishonesty and internal causes include employee theft, administrative errors and/or system failure.

From the loss prevention and security prospective, shrink is defined as loss of cash and merchandise as a combined result of external and internal thefts, in addition to internal system errors (Masuda, 1990). Shrink can also be shown in two ways; diminished sales and lowered inventory level and it has a negative impact on operating profit as a result of increased inventory carrying cost due to expanded inventory required to meet unchanged consumer demand (Masuda, 1990).

Studies Related to the shrink in terms of monetary units

Centre for Retail Research (2007) reported $98.6 billion lost by retailers globally and this work out to be $287.70 per household in the U.S. and Europe. $40.5 billion a year reported lost in United States as per report of the Retail Security Survey, 2006. According to 2003 Retail Council of Canada's Canadian Retail Security Report, the inventory shrink in retail industry amounted to $3 billion annually, in other words Canadian retailers incurred a loss of $8 million per day in lost inventory.

Studies Related to the causes of shrink in terms of percentages

Ryan (2004) reported that employee theft accounted for 48%; Shoplifting 32%; Administrative errors and vender fraud 20% of the total shrink amount. Cost per incidence is found to be 6.5 times for employees as compared to a customer as a shop lifting dollar amount.

The British Retail Consortium (2001) reported that employee theft accounted 28.8%; Shoplifting 48.4%; Administrative errors18.3%; Vendor fraud; 7.5%. 93% of the total shrink is caused by external and internal theft.

Chain Store Age (2003) reported Employee theft; 48.5%, shoplifters; 31.7%, paperwork error; 15.3%, and theft by vendors; 5.4%.

Harrison Donnelly (1994) reported, employee theft 42.1%; shoplifting 32.4%; and remainder is administrative error and vender fraud.

Retail Council of Canada' report (2003), showed employee theft 40%; customer theft 35%; administrative errors18%; and vender Dishonesty 7%;

National Retail Security Survey (2006) indicated employee theft 47%; and Canadian Retail survey (2003) results showed an equivalent of 28.5% of bottom line dollars were eaten up by inventory shrink and that is in addition to the cost incurred for loss prevention purposes including training, wages, and investment in loss prevention security systems.

From the figures and percentages mentioned above, one can conclude that almost 80% of total shrink is the result of shoplifting and employee theft in retail outlets.

Studies related to the External & Internal Causes of shrink

Joshua Bamfield (2004) conducted a study on 'Shrinkage, shoplifting and the cost of retail crime in Europe'. It was a cross-sectional analysis of major retailers in 16 European countries and in this study author identified the main causes of shrink in 16 countries. The study mainly deals with retail crime losses namely; external theft (by customers), internal theft (by staff) as well as process and administrative losses. Other types of criminal acts against retailers such as robbery, violence, terrorism, viral attacks, cash or credit frauds are excluded. In another study the British Retail Consortium (2001) reported 93% of total shrink caused by external and internal theft. The study showed a total of 18.3% of total shrink arises from non-criminal acts such as administrative or process errors. Retail crime which reflects the actual inventory shrink cost retailers a total of $27,670 million. Customer theft is a main contributor to shrink value which scored at 48.4% of all shrinkage, followed by internal theft 28.8, while theft by suppliers and their staff was accounted for 7.5%. The author showed differences in comparison with the US counterpart in regard to staff and customer theft percentages. Hollinger series (Hollinger and Davis, 2003) reported staff theft as 45.9%, and customer theft as 30.8%, while Joshua Bamfield (2004) findings are 28.8%, and 48.4% respectively. However, from both figures it can be inferred that customer theft (external cause) and staff theft (internal cause) constitute almost the same percentage of total inventory shrink that is more than 75%.

Studies related to the External theft Techniques

Inventory shrink as a result of external theft can take place in several ways. A customer directly steals and hides merchandise, includes unpaid merchandise with his/her purchases, uses other customer's receipts to steal merchandise, uses the same receipt and bags more than one time. One of the commonly used technique of shoplifting in retail is the so called "ticket switching". It occurs when a thief switches price tag of an expensive product by a price tag of lower cost product, or he/she includes an expensive item in a wrong box usually a box with lower price tag (Laura Landro, 2007). Not only this, tech-savvy members of organized retail theft rings can use portable printers to print new labels inside the store and stick them on merchandise (Laura Landro 2007).

As per Laura Landro (2007), retail outlet caught more than 1.2 million thieves and only 25.7% of them have been apprehended by the police. It indicates police involvement is perceived by retailers as a waste of time. On the contrary, police involvement sometimes bring about negative publicity for the store business, therefore, the study revealed that only 24.3% of customer thieves and 53% of employee thieves were actually reported to the police (Laura Landro, 2007). However, it is also worth mentioning that of all persons apprehended the average value of stolen merchandise per staff incident is 13 times the average value stolen by a customer thief (Laura Landro, 2007).

Forseter, Murray (2007) highlighted important survey results in regards to retail inventory shrink derived from the National Retail Security Survey of 139 retailers in the U.S. released in June 2007. According to the survey; 47% of shrink is due to employee theft, 32% customer theft, 14% administrative error, 4% attributed to vendors. The paper also highlighted the significance of employee engagement in reducing shrink by actively offering customer service. In addition, it estimated the opportunity loss in sales consequent to employee disengagement. The survey also estimated the total shrink as a percentage of sales as 1.61% for the 139 retailers been surveyed. Again the conclusion can be derived that above 80% of total shrink is attributed to customer and employee theft.

Deena M Amato-McCoy (2008), in an article titled, 'Changing the System' highlighted the increased impact of organized retail-crime (ORC) rings on annual shrink in Safeway Inc. The company identified the problem by executing a plan that tracked shipped-merchandise data and compared it with scanned merchandise at the point of sale (POS) in order to establish the loss pattern. The chain started to use its closed-circuit television surveillance system to monitor areas of concern. One of the key finding was the collaborative technique used by thieves, and the location of targeted merchandise in the store aisle.

Mishra and Prasad (2006) focused their work on employee theft, an internal cause of shrink, and they analysed and examined the effectiveness of internal control method, and random inspections of the locations at which employees work to deter employee theft. The paper investigated a retailer's plan to reduce employee theft as well as to reduce internal control and inspection costs. Employee theft has been defined as the 'theft of anything of value from the retailer by an employee or accomplice'. The term "anything of value" included cash, merchandise, property, services, and information. It is observed that retail stores are subjected to an employee theft anywhere around the store, but mostly occurs at the checkout area, followed by floor area, and customer service desk, in addition to merchandise receiving area (Mishra and Prasad, 2006).

The Studies related to Internal Theft Techniques

There are varieties of techniques an employee can use to commit theft depending on his location and job description; for example, cashiers can steal merchandise, steal cash, retain receipts to show stolen items are paid for, steal coupons, void a sale, make a no-sale for items paid by customers to take the equivalent in cash. Cashiers also can overcharge customers in different ways for instance, they can authorise cash back from a debt machine without customer request, this is basically a direct stealing from customers' bank accounts. In addition, they can undercharge or short-change customers. They can also sweet-heart for personal considerations (Sweet-hearting occurs when a cashier intentionally bag merchandise non-scanned at the point of sale for a friend, relative or fellow employee (Beverly, 2008; Masuda, Barry, 1990). Cashiers can contribute to shrink and hurt the store by passing merchandise to customers without scanning for many reasons that include training gaps, disengagement, and carelessness.

Customer service associates at returns desk can execute a lot of fraudulent transactions. For example, returns to non-existing customers, collecting customers' receipts and perform returns of all items and pocketing cash. Associates can also pocket considerable amount of cash using regular prices versus promotional prices when processing legitimate returns. Floor staff can commit theft in different ways such as direct merchandise theft, intentional item damage, loyalty card points theft, shelving merchandise in wrong places till expiry date elapses, under-receiving, over-receiving, stuffing merchandise with garbage bags (Mishra and Prasad, 2006).

Nowadays, with new labour models, retailers tend to leverage on labour to optimise cost, they assign various tasks to employees as business needs. Therefore, employees are less accountable since there is no specific task assigned to them but they usually carry on whatever leftover tasks from earlier shift, this practice facilitates employee theft. Employee theft has been recognised as a primary factor in 30% or more of all business failures (Mishra and Prasad, 2006). Theft from retailers has substantial impact on profit dollars therefore it can result in bankruptcy or downsizing. It affects employee raises and bonuses and it also increases retail prices for customers as explained in the following quote: "As store operating at 3% profit on sale would have to sell $1,216.66 worth of merchandise a year to make up for the daily loss of a ten-cent candy bar. Just to cover a yearly loss of $1,000 in thefts, a retailer would have to sell each day over a 900 candy bar, or 130 packs of cigarettes, or 380 can of soup. Faced with such unreasonable selling volumes, most small business people are forced to raise their prices and that in turn lowers their ability to compete (Mishra and Prasad, 2006). The authors concluded that an effective hiring procedure that excludes dishonest hire/s has a positive impact in reducing internal theft. On the other hand, effective internal control system greatly reduces shrink especially when such system enforce accountability through different ways including separation of duties, access control and authorizations, (Mishra and Prasad, 2006).

It's also noted that in some sensitive duties, for example, cash handling, registers, cash room, stockroom enforcing accountabilities and assigning individual responsibilities to employees provide incentives to them to protect their own locations and prevent theft by one another (Mishra and Prasad, 2006).

Proudlove (2007) examined inventory shrink in correlation with staffing, security, store design and the demographics of neighbourhood. Factors that reduce inventory shrink were determined to be;

1. Inventory turnover, the higher the turnover of a category, the lower the shrink in that particulate category, and that may be attributed to closer follow up and monitoring activities in that category.
2. The higher the density of floor staff on duty, lower is the shrink.
3. More customers' crowd with more checkout points are also associated with lower shrink.

Therefore, the study suggests that staff and customers crowding is a very effective means of reducing shrink (Howell and Proudlove, 2007).

Paula Rosenblum (2008) highlighted the significance of adding business intelligence wherever possible in store daily operation, and to make every effort that support employee engagement and to make them stakeholders in the business. Employee theft is recorded to be one of the top-three causes of shrink (Paula Rosenblum, 2008).

Ainsworth A. Bailey (2006) in an article took a theoretical approach to discuss employee theft in a context of attitude research to better understand individual's behaviour and its motivating factors. The application of theory of planned behaviour (TPB) is thoroughly examined in this article and shown the significant impact of this phenomenon on employee theft, on both retailers and end user customers, in term of profit loss and higher retail prices respectively (National Retail Security Survey, 2003). The author (Ainsworth) argued that attitude towards the theft behaviour, subjective norm, and the perception of how easy or difficult to steal at work combined together to influence the intentions to commit theft.

Attitude toward internal theft and employee's attitude towards specific behaviour (retail theft) is actually his/her perception of it as favourable or not. The positive or the favourable the attitude toward theft, the higher will be the intention to commit theft from his/her employer (Ainsworth A. Bailey, 2006).

Subjective norm toward retail theft is defined as the perceived social pressure mounted upon an individual from his/her family members, friends, co-worker or supervisors as a consequence of committing theft. For an employee, the more discouraging his/her subjective norm, the less will be the intention to engage in employee theft (Ainsworth A. Bailey, 2006).

Perceived behavioural control is the perception of how easy or difficult to commit internal theft, depending on the perceived degree of control. An employee is more likely to commit theft if he/she felt it is easy to do so (Ainsworth A. Bailey, 2006).

Organizational commitment of an employee is the degree of loyalty to his/her employer. Such loyalty is created by one or more of the following three types of commitments:

1) Affective commitment; as an affective attachment to the firm

2) Continuance commitment; which is the perceived financial consequence as a result of quitting the firm

3) Normative commitment; which is an obligation to continue working for the firm

One of the findings of the research is that both affective and normative commitments are positively related to job performance and organizational citizenship (Ainsworth A. Bailey, 2006). Since employee turnover is directly related to employee theft (May, Steven, 2007), and organizational commitment is inversely related to employee turnover (Ainsworth A. Bailey, 2006), therefore, organizational commitment is inversely correlated to employee theft, i.e. “Organizational commitment has a direct effect on attitude toward retail theft. Organizational commitment has a direct effect on intention to engage in retail theft as well as an indirect effect through its impact on attitude toward retail theft. "The higher the level of affective commitment, the lower will be the intention to engage in retail theft. The higher the level of continuance commitment, the higher will be the intention to engage in retail theft. The higher the level of normative commitment, the lower will be the intention to engage in retail theft" (Ainsworth A. Bailey, 2006). The study continued to examine employee's moral norm as a factor influencing the intention to perform retail theft; it is found that an employee's moral norm is directly related to employee's attitude and intention to commit retail theft, i.e. the higher the level of moral norm, the lower is the attitude and therefore, the intention to commit retail theft (Ainsworth A. Bailey, 2006).

Given the sensitive nature of this research, the article reflected on the difficulty on obtaining genuine survey information from employees about internal retail theft. Socially sensitive research is defined as "studies in which there are potential consequences or implications, either directly for the participants in the research or for the class of individuals represented by the research" (Ainsworth A. Bailey, 2006). The authors also investigated other factors that influence organizational commitment; such as gender, age, education and income level, employee status (fulltime versus part-time), years of retail experience, tenure with the firm, and prior experience with retail theft. The cost of merchandise stolen and the ethical climate and culture of the firm are additional potential variables that can be investigated (Ainsworth A. Bailey, 2006). The article went on to propose the impacts of both organizational commitment and employee's moral norm on retail theft, if verified, it would warrant retailers to strategise and execute effective HR policies to address those issues that maximise organizational commitment and moral norm to reduce their employees' intention to commit theft. To that end, retailers have recognised the significance of background screening for hiring the right employees as they usually outsource this crucial HR function to specialized firms (Chad Terhune, 2008). Retailers also pose a lot of weight on pre-employment assessment tests as a tool to reduce the costs of hiring and turnover (Sarah Fister Gale, 2003).

Studies related to Loss Prevention

In general, factors causing shrinks have to be highlighted in order to develop effective loss prevention programs.

In an environment of economic downturn generally more people struggle to make ends meet and unfortunately it creates environment for both external and internal theft to be on the rise.

Employee turnover which reflects job instability due to insecurity or dissatisfaction has an impact on theft. In order for retailers to stay profitable, they need to plug leaks of inventory shrinkage. The approach taken by chain retailers to increase their profitability and to minimize cost has also contributed to some extent to the rise of theft by both staff and customers. The minimal floor staff during store operation hours creates a kind of "Dead zones" that become suitable places inside the store where shoplifters feel more comfortable to perform their act, (Jenny McTaggart, 2005).

In the era of information technology, shoplifters especially organized rings utilize the internet as a safe vehicle to promote and sell stolen merchandise more conveniently not only in the local market, but also nationwide market as against the conventional garage sales or flea market. Therefore, the ease of distribution to wider range of customers through on line display of stolen merchandise is a contributing factor to the increase in retail theft, (Jenny McTaggart, 2005).

Literature survey showed many ways of loss prevention such as;

1. Offering customer service
2. Taking shoppers to products
3. Customer council and providing details on products

These methods can serve as multi-function goal of customer satisfaction and positive shopping experience, in addition to deterring shoplifters (Jenny McTaggart, 2005).

A lot of big-box chain retailers use locked displays to merchandise high ticket items to avoid theft (Jenny McTaggart, 2005). On the other hand, reducing quantity available on the shelf, frequent review of integrated POS and video reports will help early detection of theft (Jenny McTaggart, 2005). Store layouts create low traffic zones called dead zones, it is imperative to monitor these zones closely to deter shoplifters. In addition, the use of stamps-both visible and invisible- to identify store products will help deter shoplifters who steal for profit (Jenny McTaggart, 2005).

HR Prospective

Annette Kornblum (1990) defined inventory shrink as the loss incurred from both customers and employees thefts. Low employee morale and job insecurity are associated with high shrink figures The drive to reduce labour wage expense has encouraged many retailers to hire more part-time workers who usually impose greater shrink risks (Annette

Kornblum,1990). Many retailers have instituted loss prevention detailed programs to raise employees' awareness of shrinkage figures, providing incentive programs to encourage employee participation to minimize shrink losses (Annette Kornblum, 1990). Pat Quinn (2004) observed that retail loss is mainly caused as a result of theft both external and internal, the latter responsible for higher percentage of loss than the former. Training and motivation of frontline employees will secure the best defence against theft (Jenny McTaggart, 2005). To build a culture that promotes loss prevention environment, it is essential to institute sustainable communication channels with continual feedback (Pat Quinn, 2004). Pre-assessment screening process to secure the right staff remained to be the first step in combating shrink (Thomas J. Ryan, 2004). Employment screening is recommended to go further not only to include drug tests, honesty tests and criminal records, but it should also include driving records as an indication of conduct norms, a candidate who consistently drives carelessly and runs red lights will have a difficulty in obeying rules and policies of the firm, (Thomas J. Ryan, 2004). Ongoing loss prevention programs, for instance, bulletin board messages stating loss prevention rules, newsletters with updates on shoplifting incidents and so forth, should be executed by HR department (Thomas J. Ryan, 2004). Part of the internal control activities, parcel check at the end of employees shifts, and enforce employees to use lockers to keep their belongings away from store merchandise (Thomas J. Ryan, 2004).

These days the security technology is advancing at fast pace from video cameras and recording equipment to electronic article surveillance systems. However, retail thieves are always attempting to go around this technology. For instance, they use foil-lined bags to desensitise tags from electronic article surveillance (EAS) readers (Jack Finefrock, 2008).

Delaney, Joan (1993) highlighted that employee theft is not only a prime contributor to inventory shrink, but it also accounts for approximately 20% of business failures each year. Therefore, the author suggested very effective methods that can, when implemented by retailers, curtail employee theft. These methods included:

a) Efficient pre-assessment and background screening procedures.

b) Sound financial internal control system.

c) Following policies and procedures when it comes to uniforms and name tags.

d) Leading by example, valuing and encouraging honesty.

e) Understanding employee needs and offering financial support as required for emergency situations.

David Dritsas (2007) observed that organized retail theft (ORC) is a pressing concern to all retailers. ORC operate not only externally, but also internally when professional rings get access and collaborate with bad employees of victim stores.

Deena M. Amato-McCoy (2003) reported in an article that internal shrink caused by employee theft, cashiers theft is the largest component of internal inventory shrink. The Study showed loss prevention training, policies, and technology has great impact on shrink reduction; Shrink dropped from 2.34% to 2.30% as a result of executing a new-employee shrink awareness program. A reduction of 0.4% of shrink is experienced in stores with a formal ongoing loss prevention program, (Deena M. Amato-McCoy, 2003).

Another study explained that the positive environment is less likely to foster employee crimes (Millie Kresevich, 2007).

Adrian Beck & Colin Peacock (2007) studied shrink in five retailers in United States to derive the best practices in preventing shrink. In this study it is observed that:

Organizational commitment from senior level down to individual employee is a cornerstone in loss prevention. Adherence to standard systems and procedures at all time from receiving merchandise to checkout points should be uncompromised priority.

Maximizing awareness of shrink and disclosure of actual shrink figures amongst staff in a timely manner is found to be a positive driver to reduce shrink. Empowering frontline staff, and seeking their contributions on loss prevention plan, providing necessary training and technology and holding them accountable are all effective measures to reduce drainage of profit dollars, (Adrian Beck & Colin Peacock, 2007).

Shrinkage is every employee's business is the initiative derived from the study carried out in a Wal-Mart store (Steven May, 2007). Staff turnover rate is directly proportional to the rise of shrink figure (Steven May, 2007).

The rate of employee turnover is an indication of an existing problem of employee disloyalty (Jenny McTaggart, 2005). Dedicated employee is the corner-stone of any loss prevention strategy to effectively contain shrink cost (Diane Filipowski, 1990). Therefore, loss prevention begins with the recruitment process, conducting multiple interviews, reference checking and integrity checking should be thoroughly done before the hiring decision is made. Once the right staff is in place, it is equally important that HR department to follow with effective programs that value employees and help humanize the company (Filipowski, D., 1990). Other HR programs that have direct impact on retail shrink include retention programs, compensation package, profit sharing, benefit packages (Filipowski, D., 1990). 70% of those stopped or prosecuted by police for shoplifting were tested positive for drugs (Annette Kornblum, 1990). Since effective loss prevention program is a collaborative effort, retailers have to develop advertising campaigns to highlight shrink problems and its impacts on consumers due to increased retail prices (Filipowski, D., 1990). Not only customers and retailers are affected by retail theft, but also the government loses taxes from potential sales of merchandise.

As per Centre for Retail Research (2007) report, loss prevention of assets is not simply utilizing latest technology or quicker reactive procedure of informing police authority, but it has to be based on;

1. Identifying and monitoring the key problem areas (loopholes)
2. Appropriate remedial actions to be executed as incidents occur.
3. Finally, loss prevention policies and procedures should never be compromised amongst staff.

In Centre for Retail Research (2007) report it was also found that managers and supervisors trusted the most by the firm, have the greatest chance to steal, and the study went on to classify internal theft offenders as ‘Chancers’ (Who steal when safe opportunity exist) ‘collaborators’ (Newly hired staff enticed by bad employee to join a theft club), and ‘insiders’ (The staff recruited by organised retail rings to facilitate theft.

Technology

1) Video surveillance and monitoring systems are very important and reliable mechanism in loss prevention. Mainly they composed of cameras with zooming capabilities, DVRs (Digital video recorders), digital cameras to capture and store data in computer databases. The data base is available for review as required. Now there is a new version that offer an interface with point of sale (POS) for even more retrieval of sales transactions data where questionable transactions can be remotely reviewed, reports and photos can be printed out and retained for future loss prevention investigations (Ken Mark, 2006).

2) Electronic article surveillance (EAS) which consists of three components; alarm activating tags to be placed on merchandise, magnet deactivators interfaced with POS checkouts and finally detecting devices assembled at the points of exit. Unpaid for merchandise (not scanned by a cashier) will set off the alarm resulting in a noisy sound. One of the main disadvantages of this system is that, magnetic tags cannot fit in a lot of product lines, for instance, fresh produce, meats, and many grocery lines. In addition, radio frequency interferences problem from metals, and frequent false off setting of alarms cause inconveniences to both staff and shoppers.

3) Point of Sale (POS) systems nowadays serve dual functions, in addition of completing daily sales transactions, they are capable of generating various loss prevention reports used for internal control procedures, and monitoring all cash and debt/credit transactions for loss prevention officers, in case any suspicious trends are encountered.

4) POS integrated with digital monitoring system: It is a newer version of POS interfacing video with POS transactions data, this can help auditors to download data of several hours of operation looking for suspicious transactions or red flags.

5) Radio Frequency Identification (RFID): It provides better control on shrink throughout the entire supply chain. There are a lot of benefits retailers can get from this emerging technology. In addition to stream lining the whole inventory handling process, it can also offer tracking of merchandise in real time, reduced labour cost (receiving personnel), easier and more accurate restocking orders etc. because, tags show the locations of merchandise inside the store or in the backroom (Bob Trebilcock, 2006).
A radio frequency identification system composed of unique identification numbers each of which is assigned to each stock keeping unit (SKU). RFID tags store pertinent information- attached to SKUs, and also have antenna to conduct frequency reading device to help communicate with tags, and data interchanging devices to allow transmission, formatting and retrieval of data. When compare RFID to bar code technology, then there a lot of advantages of RFID over the ordinary bar code system. Using RFID, product information flows in continuous basis without interference of human errors and this is not the case while using bar code technology. Bar code system require unpacking of merchandise order to scan individual bar codes for receiving purposes, but, RFID can facilitate receiving of complex merchandise order as soon as it enters store premises. By the aid of Off-site digital remote monitoring systems in addition to RFID technology, and other new monitoring techniques, retailers are now in a better position to dramatically reduce inventory shrinkage (Tracy Mullin, 2004).

7) A Closed Circuit Television (CCTV): Another video magnification circuit including a video or television screens connected with video cameras mounted in various locations. Clear video pictures are obtained through either the electronic conversion from the small camera image to the larger display screen or through optical zooming capability of the digital cameras. Like the digital cameras, the monitors (TV screens, video or computer monitors) can also be strategically mounted in the store, so that shoppers can see themselves on the screen.

Nowadays, electronic tags such as RFID, EAS, smart cards and intelligent tags (Electronic data tagging) play a crucial role in retail industry not only to curb theft, but their applications offer important data about supply chain, inventory management, and shopping trends and retail sales (European Retail Theft Barometer, Center for Retail Research 2006).

Problem Statement for the Project

In this project I am motivated to observe the issue of shrinkage at a retail outlet level in Prince George. Prince George is relatively a small community in Northern BC that enjoys both urban and rural life style. This project will lead to find how far shrinkage occurs and why it happens. The aim is to find the specific influencing factors cited in the literature review along with possible understanding of the mechanism so that ways and means could be devised to reduce it. The reduction in shrink may help small retail outlet managers to increase their profitability to a larger extent.

Research Methodology

Case Study

A suitable retail outlet is selected as a case study in the city of Prince George. For reason of confidentiality the name of the store is not disclosed here but if any member of the committee is interested to know for evaluation of this project then it can be made available for the purpose of verification. However, the Case study store provides a large selection of national and in-house brands and can be comparable to three stores under one ceiling, such as OTC and Healthy Living Products, Beauty Boutique and Mass Cosmetics Products, and Confectionary and Food Products.

Data Collection & Tools of Analysis

The primary data related to the shrink has been collected from the retail outlet selected as the case study. In addition to primary data, the relevant data has also been collected from secondary sources of information such as, Statistics Canada, and other published information available in literature.

Based on the nature of the data, suitable statistical tools and techniques were selected for data analysis. The primary data obtained from actual store operations, and the secondary data collected from literature and companies / organizations were helpful in assessing the annual shrink, operational aspects that encourage shrink and in the proposing operational mechanism to reduce/ prevent shrink.

Case Study -Analysis and Discussion

Case Study - Introduction to its operational systems

Like the majority of chain retailers, the case study store belongs to one of the largest chain retailer in Canada, and inventory supplies are almost entirely provided by the central distribution warehouses which are owned and operated by the corporation, therefore, shrink caused by vendor errors, administrative errors, and/or system failure is actually found to be virtual, in other words, actual dollar loss is not incurred. Given such a case, this study being focused only on theft proportion of shrinkage is justifiable as an actual monetary loss that greatly impact profitability of the store. As supported by literature review, the major contributors to inventory shrink are; external theft (Shoplifting by outsiders that include customers) and internal theft (Due to employees getting involved in theft). In total, almost 80 % of the total shrink on an average is caused by theft related to both external and internal causes.

Description of inventory reports in the case study.

Inventory shrink is usually expressed as a percentage of sales in reports published by Retail Council of Canada (RCC), National Retail Security Survey (NRSS), British Retail consortium, and Center for Retail Research (CRR). The case study store belongs to a major retail organization in Canada and the organization has a long experience in retail operations.

Centrally generated annual shrink reports are sent from the organization's head office to each retail outlet following the physical inventory count in May/April period of each year. A 3rd party contractor is used to perform the physical count of merchandise in all shelves and stock room, then discrepancy reports are generated to double check and confirm variances, and then a full inventory report is sent from the corporate office showing dollar amounts of all adjustments by category where Materials Management Systems (MMS) and General Ledger (GL) values are adjusted to the 3rd party values. Shrink figures are calculated and set in different ways, namely; dollar amount, gross margin (GP) percentage shrink, and shrink as percentage of sales.

The major disadvantage of the annual shrink reports is found to be that they can only determine the total shrink without identifying and correlating dollar amount to types of shrink. Therefore, the analysis can not go further to determine dollar amount of internal causes apart from external causes, however, the main point is to determine the total theft as an actual shrink per annum by excluding system and vendor errors as a virtual shrink percentage. Another shortfall of shrink evaluation is that it is a onetime annual evaluation that will not allow appropriate timely reaction to theft.

Being part of a chain retailing company, the case study store is completely dependent on a highly integrated network of three systems in its day-to-day business activities;

1) Point of Sale System (**POS**)

2) Material Management System (**MMS**)

3) Retail Sales System (**RSS**)

All these system are connected to central data system at the corporate level through satellite network. A brief definition and functional role of each system is described below.

Point of Sale (POS)

This system starts at cash registers to record sales activities and sometimes interact or interface with the debt/credit machines to record debit/credit cards purchases. Scanning an item will activate MMS system to subtract that item from the inventory with the suggestion of purchase order, in case the item fall below the minimum stock level required to replenish the inventory.

Material Management System (MMS)

This system is the core vehicle to manage the overall products (SKUs) movements. The system is preloaded with all product mix (SKU's). It shares product information with the POS system including the cost, retail price, taxes, the customer is charged and the number of items has been sold. As each product is sold through the cash registers, the inventory is reduced in MMS based on the UPC Code scanned.

Retail Sales System (RSS)

Data about the purchase will be instantaneously fed into RSS, the $ amount and how the payment was received will eventually pile up the account receivables. On the other hand, the purchase order created in the MMS system will suggest the account payable at the RSS side.

Inventory Overview and Value Analysis

Case study store provides a large selection of national and in-house brands through virtually three stores under one ceiling – OTC and healthy living products, beauty boutique and mass cosmetics products, confectionary and food products. The store's inventory is divided into the following nine main categories;

a. Health and Beauty Aids (HBA)
b. Imaging (Photo processing machines, films, digital camera etc.)
c. Seasonal HBA.
d. Over the counter medication (OTC)
e. Cosmetics
f. Confectionary
g. Paper
h. Beverages
i. Household items

Cosmetics Category

The study case store offers a wide selection of cosmetics Stock Keeping Units (SKUs) subdivided into two main types.

Prestige cosmetics located inside the beauty boutique and mass cosmetics found in the aisles adjacent to the beauty boutique. Cosmetics SKUs further subdivided into 38 subcategories which constitute 49.1% of the total inventory dollar value. In the context of external theft the most appealing categories for theft are found be;

1) Prestige eye colour.
2) Ladies fragrance.

3) Men fragrance.
4) Jewellery and fashion.
5) Nail treatments.
6) Depilatories

Over the Counter (OTC) products

Over the counter medications is the main destination for store's customers. However, this category represents 19.4 % of total inventory. There are around 28 subcategories, and as per store records the products with highest occurrence of theft belong to the following subcategories;

1) Family planning.
2) First aid products.
3) Weight and diet control products.
4) Mouth and lip care.
5) Acne products.
6) Smoking cessation aids.
7) Sedatives and stimulants.

Health and Beauty Aids (HBA)

HBA is one of the most important category (Seasonal and general HBA), comprising 17.5% of total inventory. It consists of around 40 subcategories. In the context of inventory shrink, the most targeted subcategories are the following;

1) Deodorants and Antiperspirants.

2) Oral Hygiene.

3) Magazines.

4) Appliances.

5) Accessories.

6) Giftware.

7) Shaving products.

8) Hands, Face, Body products.

The Percentage Distribution of Store Inventory

The three major categories; Cosmetics, Over the Counter Medication (OTC), and Health and Beauty Aids (HBA) comprise an almost 86% of total inventory value in the outlet as per inventory records of the store. The other six categories make up only about 14 % of the total inventory and it is shown in Table 1 and figure 2 below.

Item Category	Percentage of total inventory
HBA	17.5%
Imaging	2.1%
OTC	19.4%
Cosmetics	49.1%
Confectionary	2.3%
Paper	2.3%
Beverage	1%
Household	2.1%
Miscellaneous	4.2%
Total	**100 %**
Major Categories	
Cosmetics	**49.1%**
OTC	**19.4%**
HBA	**17.5%**
Total	**86% of total inventory**

Table 1. Showing percentage of inventory for various item categories

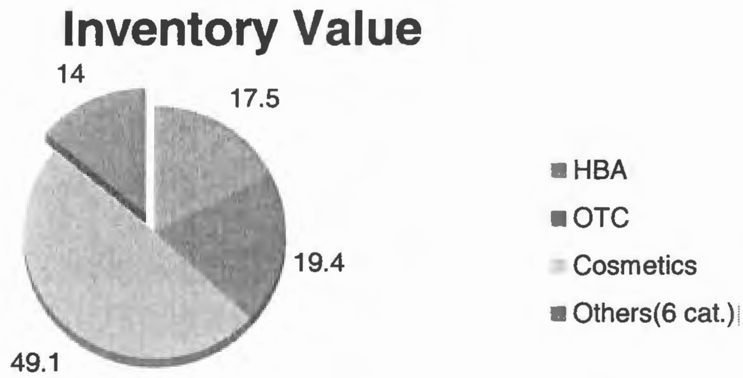

Figure 1. Pie chart showing the % age of item categories in the total inventory

The $ value of Inventory Shrink over the last five years

For the sake of confidentiality the data provided in $ amount in the form of sales or in the form of shrink is some multiple of the actual numbers from the store. However, if members of the committee and the external examiner need to know the actual numbers then it can be disclosed for verification purposes with the understanding and the agreement that these numbers are not disclosed to anyone else.

Examination of Shrink in Terms of Percentage over the last Five years

Upon examination of shrink trend within the whole inventory categories, the shrink in the major categories (HBA, Cosmetics, OTC) constituted on average of 88.3% of total annual shrink over the last five years as shown in table 2. The sharp increase of shrink figures in both cosmetics category and OTC category in the year 2008 is mainly due to introduction of prestige cosmetics in the beauty boutique and the introduction of wide selections of healthy living products as part of OTC category. Both selections are high target for theft.

Category	May, 2004	May, 2005	May, 2006	May, 2007	May, 2008	Av. %
HBA Shrink	22,697	26,364	24,638	15,102	31,394	36.5%
Cosmetics Shrink	5,592	12,189	16,304	2,377	63,288	30.3%
OTC Shrink	12,076	7,870	9,408	5,268	36,374	21.5%
Total Categ. Shrink	40,365	46,423	50,350	22,747	131,056	
% of total shrink	100%	92.7%	88.1%	86.5%	74.2%	88.3%

Table 2. Percentage of shrink over the last five years for the three major categories

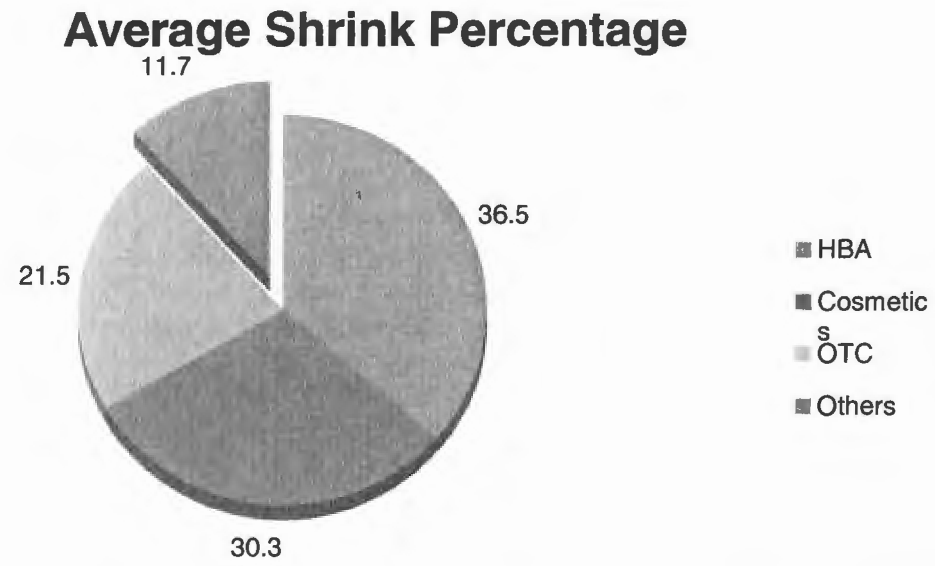

Figure 2. Pie chart showing the shrink % age in HBA, Cosmetics, OTC , and other categories

Table 3, shows the annual calculated theft $ figures related to the selected categories over a period of five years, from May, 2004 to May, 2008. The introduction of various exclusive lines of prestige cosmetics in 2008 is associated with a dramatic increase in shrink from a low of $2,377 to the all time high of $63,288 in cosmetic section. Also, the newly introduced natural healthy living products have enriched the OTC category, however, shrink value has staggered in that category by an equivalent of more than 100% increase as shown in figure 3.

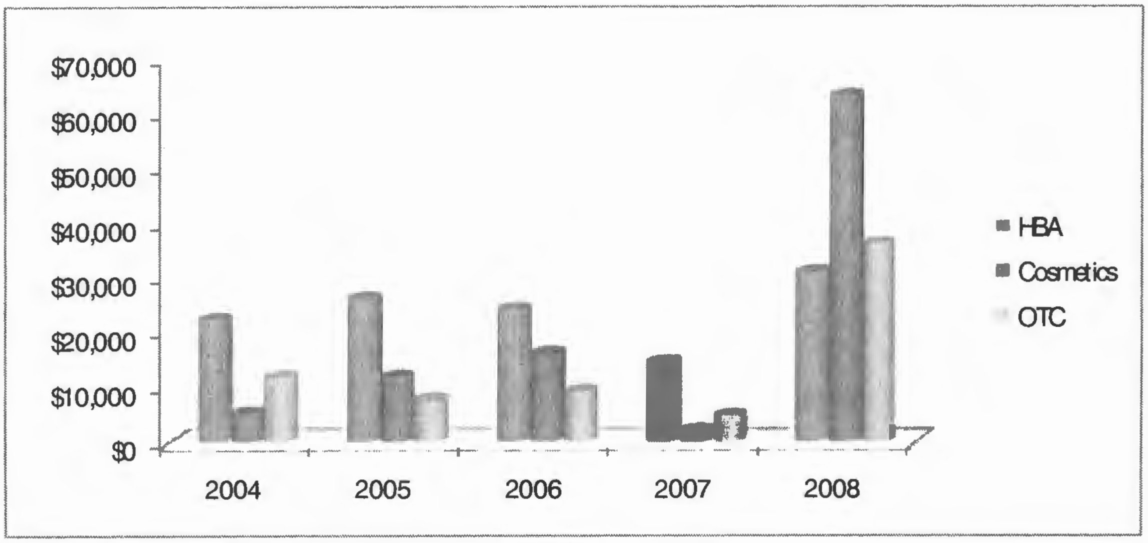

Figure 3: Shows Shrink Trend within selected categories (May 2004-May 2008)

Category	Year 2004	Year 2005	Year 2006	Year 2007	Year 2008
HBA Shrink	22,697	26,364	24,638	15,102	31,394
Cosmetics Shrink	5,592	12,189	16,304	2,377	63,288
OTC Shrink	12,076	7,870	9,408	5,268	36,374
Total Shrink	40,365	46,423	50,350	22,747	131,056
Shrink due to theft	**32,292**	**37,138**	**40,280**	**18,197**	**104,844**

Table 3: Shrink due to theft in $ amount in the selected categories (May 2004 -May 2008)

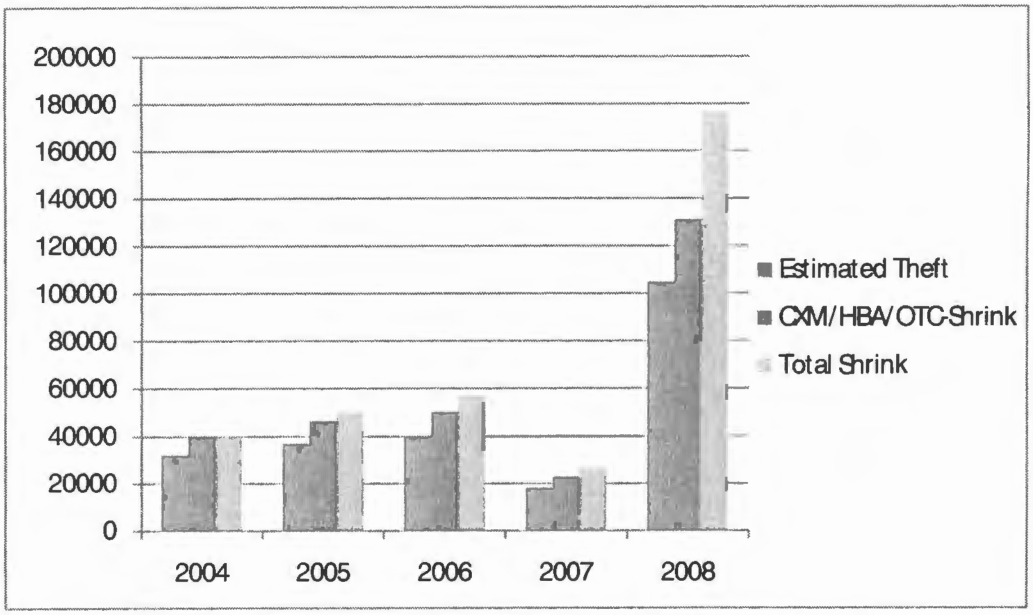

Figure 4. Bar chart showing the $ value of shrink in the three categories

Analysis of Operational Parameters

Realizing that wage expense is the major variable cost component of pre-tax earnings, retailers have strived to achieve efficiency in operations by leveraging on labour to maximise profitability. Unfortunately, this practice does not come without a price. Staff density on the floor has a direct impact on theft (Sydney D. Howell and Nathan C. Proudlove 2007).

In this case study, two variables were identified to measure staff density.

1. The number of scheduled labour hours per one hour of operation and
2. The number of scheduled hours per unit of selling area

Based on literature review, availability of floor staff to greet, help, and offer customer service to shoppers greatly reduce opportunity for theft (Sydney D. Howell, Nathan C. Proudlove, 2007). Measuring staff density will reflect on theft opportunities, and therefore, the following metrics were devised to find out the vulnerability of the store to both internal and external type of theft.

Labour Hours and Hours of Operation

Wages as the major controllable expense has drawn special attention of managers in retail operations as it greatly impact store profitability. The case study store is not an exception, and it also pays special attention to labour hours to meet the plan.

The in-house data shows in table 3, a steady decline in total labour hours allotted for each hour of operation year after year from 5.56 to 5.04 up to three years (From 2004 to 2006) and then increased to 6.8 in 2007 because of the relocation to a new store with extended hours of operation, and then it again declined to 3.2 in year 2008. In year 2008, the shrink jumped to relatively very high level due to introduction of the beauty boutique offering largest selection of prestige cosmetics which is the high target for theft. In addition the 5.8 labour hours per hour of operation could not reasonably service the store that was almost double the size of the traditional store. The store was relocated to a larger format in the last quarter of 2007.

Year	**2004**	**2005**	**2006**	**2007**	**2008**
Lab. hr per hr of operation	5.56	5.51	5.04	6.8	3.2
Est. theft	32,292	37,138	40,280	18,197	104,844

Table 4. Shows Labour hours per hour of operation in relation to $ shrink over five years

In year 2007, 6.8 labour hours per hour of store operation are calculated on the basis of first three quarters plus the last quarter of the larger store format which was 1.8 larger than the earlier store space operated up to the third quarter of 2007. During that period there were more persons employed to do store setting up with new team of employees. In 2008, the new store came into full operation and the staff got reduced as per the retail store policy and then the labour hours per hour operation dropped to 3.2 and it led to exposure of merchandise for theft opportunities and the shrink jumped sharply.

Labour Hours in Relation to Selling Area

The number of labour hours per square footage in table 4, indicate staff density which is inversely proportional to theft opportunity (Sydney D. Howell, Nathan C. Proudlove, 2007). This metric is especially important to monitor internal theft, because the higher the number of hours the higher the chance of more than one employee scheduled at a time that greatly reduces internal theft opportunity in the staff and stock rooms. In this case study also there is a noticeable decline in the number of scheduled hours per selling area over the last five years that explain the increase of theft shrink. Again, the increase of labour hours in 2007 is due to employment of extra staff for the purpose of store set up.

Year	**2004**	**2005**	**2006**	**2007**	**2008**
L.H/sq.ft	2.49	2.46	2.40	2.97	1.51
Est. theft	32,292	37,138	40,280	18,197	104,844

Table 5. Shows Labour hours per Square ft in relation to $ shrink over five years

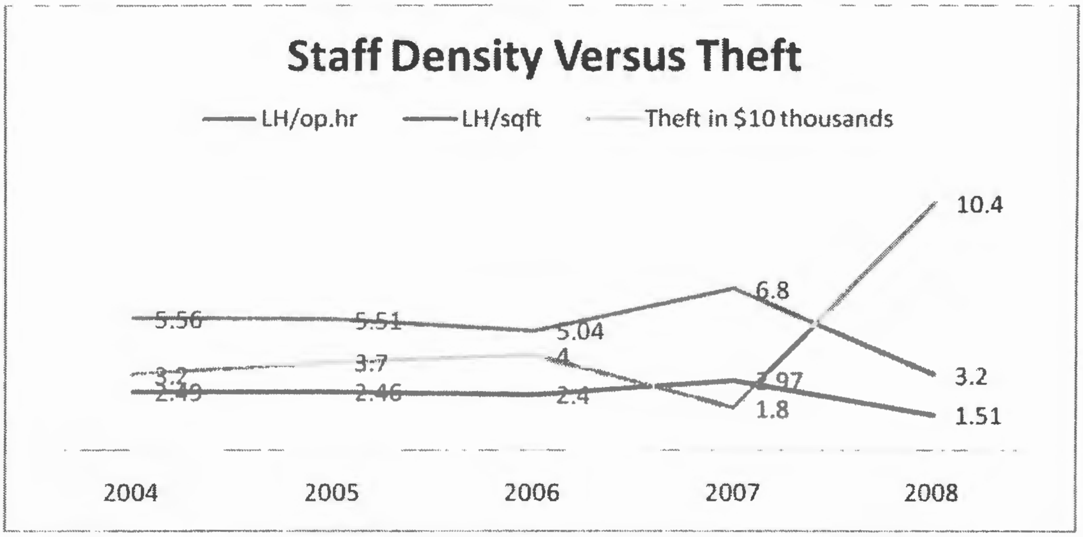

Figure 5. Shows Staff Density in relation to Theft in the case study store (Shrink)

Sales per Labour Hour (SPLH)

Unfortunately, operations efficiency expressed in terms of sales per labour hour (Productivity metric) is also reflects in a way on shrinkage. The higher the number of SPLH (Sales required per hour from each labour) the higher the involvement of staff in actual sales transactions, and the lower the chance of staff availability to watch shoplifters. The data related to the case study, table 5, for the last five years also show the similar trend.

Year	2004	2005	2006	2007	2008
SPLH	114.84	119.01	118.33	96.78	152.59*
Est. theft	32,292	37,138	40,280	18,197	104,844

Table 6. Sales per labour hour in relation to $ shrink over five years

Furthermore, a new 'move' of retailers to schedule employees at on call basis as business requires "essentially zero scheduling at zero sale" has imposed a lot of pressure on managers to meet the plan and it appears not attainable without exposing store inventory to theft. The line up in front of checkouts also increase the chance of theft in different ways, as it provides less time for cashiers to examine tickets on products, hence, ticket switching, under-charging are highly likely to occur.

As supported by literature review, the higher the number of checkouts the lower the theft opportunity (Mishra and Prasad, 2006; Sydney D. Howell, Nathan C. Proudlove, 2007). Again, operating under a tied budget necessitates reduction of checkout points which will overload operating tills and therefore create customer line up.

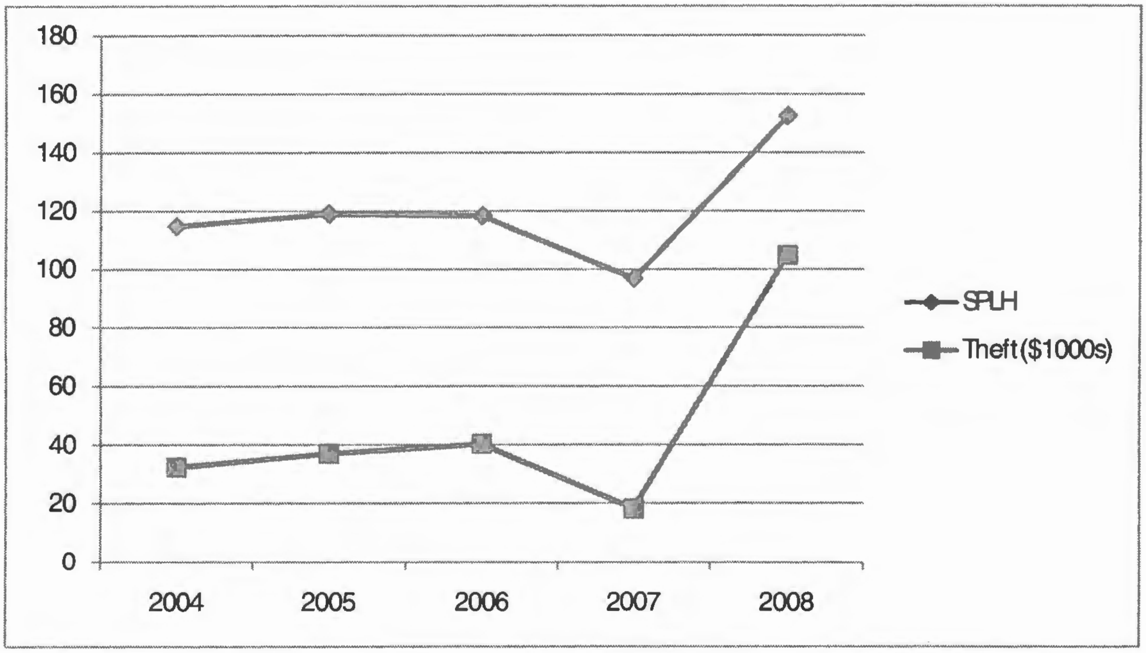

Figure 6: Correlation of Theft to a Productivity Metric

Analysis of HR Operational Practices

Human capital is a corner stone in successful retail operation. Shroud retailers recognise the significance of recruiting and retaining good employees. The following observations are found upon conducting staff analysis;

a) **Staff mix**

Based on literature as well as retail experience, higher proportion of part time staff is associated with higher theft, (Annette Kornblum, 1990). The data collected from the case study shows a steady increase of part time employee proportion each year and also the shrink figures.

Part-time employees in most cases have lower scores of loyalty. They are either have or looking for another source of income, therefore, they are mostly less loyal, and less committed and engaged.

b) **Employee Turnover Rate**

Employee turnover rate reflects on the staff that often quit the job. The employee turnover rate indicates the HR policy issues like compensation package, retention strategy, and work environment issues. The moment employee contemplates to move on, his/her loyalty and engagement will be affected, when she/he starts to actively looking for an alternative job, disengagement and indifference will follow which will negatively affect the whole business. As shown in literature, the higher the turnover rate, the higher the shrink (Steven May, 2007; Jenny McTaggart, 2005).

Turnover rate was calculated on the basis of number of employees quitted divided by total staff in that year.

Percentage of part time employees was calculated as, the number of part time employees divided by total staff in that year. The operational parameters related to employee turnover and percentage of part time employees in relation to shrink shows the similar results over the period of five years as shown in table 7.

Year	Calculated Theft ($ thousands)	Turnover Rate	% of Part-time Employees
2004	32.3	20%	48%
2005	37.1	28%	48%
2006	40.3	38%	50%
2007	18.2	30%	58%
2008	104.8	43 %	68%

Table 7. Shrink in relation to employee turn over rate and %age of part time employees

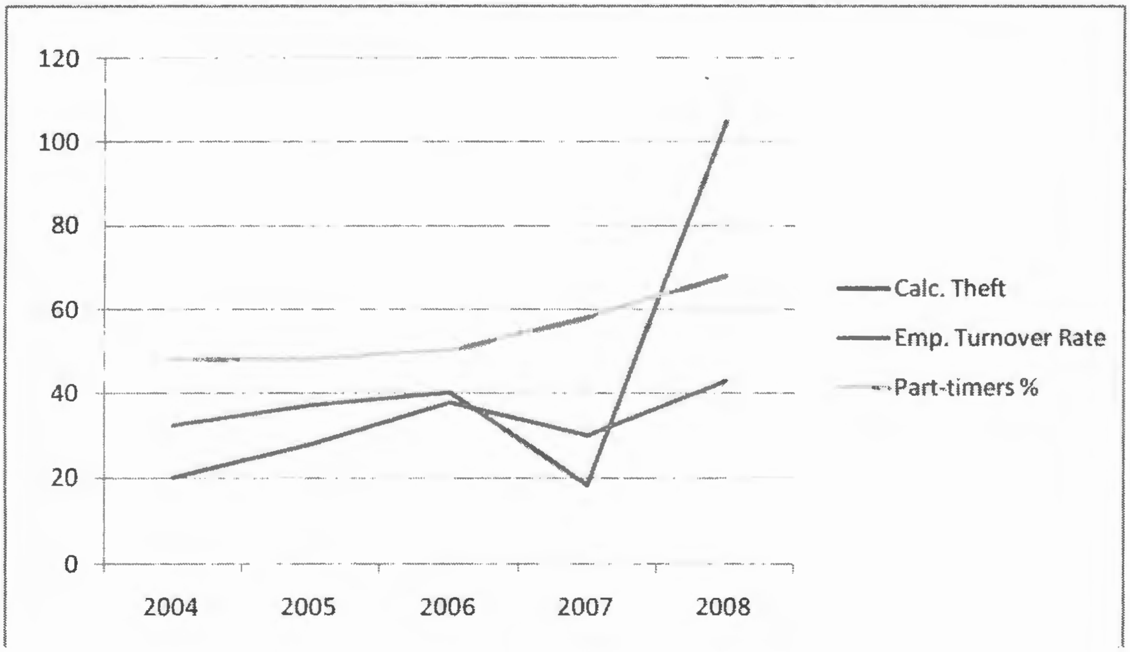

Figure 7. Employee turnover, and % age of part timers in relation to Shrink

Research limitations of this case study and Future Research prospects

1) Comparative data at store level of any competitors is not available. However, it could have been difficult to perform a comparative study with the competitors at the retail outlet level since there are many variables that limit such study. For example, product-mix difference, location and layout difference, demographic difference, wage differences etc.
2) It has been found out that in the available literature related to the internal and external shrink authors have come with proportions of theft. How the authors have come with the internal and external shrink proportions is not explained in the literature. However, in the case study store it was observed that managers working at the operational level can not ascertained the numbers related to internal theft and external theft. Therefore, if in practice it can not be done at the retail outlet level then how it can be calculated at a higher level as shown in the literature.
3) Annual shrink report is found to have additional short comings too. It is one time evaluation per year as it is found to be costly to do it more frequently and also it cannot determine the percentages of different kinds of shrink. One of the main disadvantages of annual evaluation of shrink is that it uncover shrink only after the fact and therefore, it can not allow for a timely action to reduce shrink in the same year or time period.
4) In the case study, the theft specifically related to internal causes was found to be a very sensitive issue and it was found to be difficult to obtain accurate surveys. Any other source of information or data was also not available to differentiate internal and external theft and their proportions.

5) Future research may be done to study the feasibility of hiring customer care associate-out of store budget- in reducing shrink.

6) Research can also be done on assessing shrink using cost effective methods to determine types of shrink.

7) Determination of an optimal employee mix (part time to full time) that minimizes shrink level is also possible.

Based on the above mentioned analysis mechanisms of eliminating or reducing theft are suggested below from three different angles namely; internal control, strategic HR practices, and by the use of security technology.

Loss Prevention through Internal Control

The following loss prevention measures may be helpful to reduce inventory theft;

1) Receiving

- All receiving must be done through the receiving door only. Access to the receiving area is to be controlled and doors must be fitted with a day alarm that is activated at all times when not receiving purchase orders.
- All incoming receipts and outgoing shipments are logged in the receiving logbook the moment the shipment enters or leaves the facility that creates a physical record of the shipment that can then be referenced to at anytime in case it is required.
- The person who orders the inventory should not be the same person who receives the inventory, since the person ordering stock has access to quantities being ordered and access to inventory levels in the system. He /she should

also not be recording the quantities being received both in the receiving logbook and in the computer system.

- Surprise receiving audits need to be performed on a regular basis. Staff and truck drivers should be selected on a random basis for looking at the logbooks and any discrepancy observed need to be brought to attention immediately.
- Garbage removal must be done between specified times and need to be supervised. Clear garbage bags should be used for garbage disposal.

2) Inventory

- Merchandisers should be well trained to identify mis-picks and order errors.
- On hand quantities should be compared to quantities on computer system on a routine basis. Discrepancies to be investigated and rectified on a timely basis to identify areas of inventory shrink.
- Storage areas should be kept in a neat and orderly fashion, obsolete and damaged inventory are to be kept to a minimum and segregated from the rest of inventory.
- Damages are not to be given to staff. After properly scanned out, damaged items can be donated to charity or thrown in the garbage.
- Explanations for adjustments to inventory be reviewed and signed regularly.
- Transfer to and from secondary storage areas are to be logged and a list of inventory to be maintained off-site and it be limited to low risk-high volume items.
- Regular cycle counts needs to be done to provide understanding of what merchandise is being stolen. Review of cycle count summary reports to be

verified to encourage regular cycle counts to capture theft. High theft products displayed two-item deep and security tagged. Overstock drawers must be locked.

3) Cash

- Access to the cash safe should be limited to one supervisor per shift.
- Access to each cash drawer should be limited to one cashier.
- Cashier passwords should be changed regularly. For example, after every 3 months.
- Surprise register audits to be performed on a random basis on every cashier, to ensure cashiers are collecting and disbursing cash correctly. Audits raise awareness of the importance of personal integrity and may result in the identification of theft.
- Result of the surprise audits should not be communicated to cashier so that there is no chance to compensate for discrepancies.
- The sales person tracking reports to be reviewed by supervisors for all till documents to identify unusual occurrences for a specific cash register. Identification of discrepancies needs to be investigated and eliminated.
- Refund slips must be completed in full by the customer. Refund call back must be conducted to ensure that the refunds being transacted are legitimate and have not been falsely created.

4) Physical security

- Parcel checks; the purpose is to reduce the opportunity for product leaving the store that is not paid for.

- Staff purchases are to be kept in a secured area until removed from the store at which time they are subject to inspection.
- Cleaners' equipment must be checked as they leave the building.
- Electronic article merchandising system (E.A.S); merchandise is tagged with activating stickers that are deactivated at the point of sale (POS) when scanned. If not deactivated, the tag sets off an alarm at either the entrance or the exit. Run the security tagging list from material management system to execute tagging of all items on the list. EAS system must be checked and logged daily before the store opens to ensure it is functional. All alarms must be answered by asking the customer to return to have their purchase checked and deactivated. Make notes on the alarm activation logbook at the front cash. Night crews must have supervisor on duty at all times and the perimeter alarm must be activated during their shift. Cleaners must be supervised while they are in the store and not to be given keys or alarm codes.

Maintaining maximum visibility amongst store aisles

The following store layout and fixture improvements changes should be made in order to maximize visibility and reflect better service level.

- To maintain secured displays for highly targeted merchandise, electronic devices and appliances should be locked or reasonably secured displays accompanied with an effective customer service to eliminate high-ticket merchandise theft.

- Improving or maintaining higher visibility possible amongst aisles by removing extra stocks from the upper shelves that impede video cameras. Reducing high price item quantities displayed will also help detecting lost items more easily.
- Merchandisers shall reduce the number of advertising stands to the minimum.
- Merchandisers shall remove high stacks and extra products from shelves.
- High ticket gift sets and pre-packs shall be displayed in high traffic areas and in the sight of beauty boutique checkouts.
- Elimination of dead zones-lower foot traffic areas- in the store will reduce theft opportunities (Deena M Amato-McCoy, 2008).
- Rotating high target merchandise.
- Known loss tracking logbook to be filled in as losses are identified and filed in a receiving area, this will help compile data regarding theft incidences.

Loss Prevention through Strategic HR Practices

Building a loss prevention culture is proven to play an important role in deterring theft (Pat Quin, 2004; Millie Kresevich, 2007) and making loss prevention every body's business is the ultimate goal that can be reached by using the following techniques.

1. Go an Extra mile with part time employees

Now a days, retailers continue to move towards replacing long term full time employees with more part time workers to avoid high wages and full time benefits expense. Therefore, it is critical for the HR department to recognise the impacts of such trend on store operation including inventory shrink. Based on in-house data there is a noticeable increase in proportion of part time employees year after year throughout the period of study. Since economic incentive cannot fully satisfy part time employees, given the limited hours of work offered to them, then use of non-monetary incentive for them can make the difference. This is attainable through different mechanisms, for instance, offering part time employees flexible schedules that allow them to have additional income or to accommodate their other life commitments. Part time staff can also be given priority for promotion to full time if opportunity arises. Management team should enforce the sense of belongingness amongst store staff and part time employees should not always be assigned to unfavourable tasks and difficult shifts because of their part time status. On the other hand, emphasis should be placed to change the attitude towards part time employees considering them integral part of the store system.

2. Foster Employee engagement and loyalty

Nothing is more damaging to business than disengaged employees (Forseter, Murray, 2007; Paula Rosenblum, 2008). Creating positive environment that foster employee loyalty and commitment is of utmost importance. Not only full time employee proportion dropped in the last few years, but a new 'move' of retailers to schedule employee on call basis as per business requirement is new trend. Such trend has potentially negative impacts on employee satisfaction and hence loyalty, not to mention job insecurity that also greatly impact theft (Ainsworth A. Bailey, 2006; Annette Kornblum,1990). Treating workers with dignity and respect may lead to higher job satisfaction and higher productivity (et al, Management of human resources Book). Promoting clean, friendly and positive work environment also greatly reduces internal theft (Millie Kresevich, 2007).

3. Effective Screening of New hires

Selection and recruitment of new hires are very crucial HR functions. Having loss prevention in mind, emphasis on honesty and integrity tests should be treated as important as technical skills and reference check.

Filling open positions with inside candidates has many advantages such as, hiring from within staff is perceived as promotion and reward for competence, loyalty, and performance, and therefore, this will drive employee engagement and improve morale. More accurate assessment of the person's skills and performance level is another advantage of hiring from within the store, (et al, Management of Human Resources Book). On the other hand, retention strategy should be in place to complement the recruiting process. Compensation package should be carefully chosen. Put differently, it should be flexible to adjust in accordance with labour market and changes in leading economic indicators to appropriately offer monetary and non-monetary incentives to retain qualified candidates, (et al, Management of Human Resources Book).

4. Creating a customer care associate position

Realizing that loss due to theft eats into profit dollars and an additional large quantity of sales is required to compensate the loss, the actual cost structure of shrink can be quite complex when adding inventory carrying cost, service costs (Shipping, receiving, merchandising, selling expenses), opportunity cost that incurred due to out-of-stock caused by theft, in addition to customer dissatisfaction and compromised service level. Thus, securing a free customer service associate in peak hours will definitely help in deterring shoplifting. In addition, incremental sales that can be generated by having a free customer service associate offering customer service, directing shoppers to products, helping them find what they need, maintaining better service level. The addition of free customer service associate can add lot of value that can possibly impact the bottom line of the store by driving sales.

5. Building Loss Prevention Team

In order to highlight loss prevention awareness, and making loss prevention an operational priority, a loss prevention team should be designed to execute on-going loss prevention programs and enforcing standard procedures that designed to minimise or eliminate shrink, (Thomas J. Ryan, 2004). Team members should be carefully chosen from staff key performers such as assistant front store manager as the team leader, and other members such as a receiver, a beauty boutique merchandiser, and a cash supervisor. Their objective should be integrated effort to combating inventory shrink, heightening awareness through regular communications of on-going loss prevention programs as it can have a direct impact on reducing theft (Deena M. Amato-McCoy 2003), creating loss prevention culture that makes loss prevention everybody business, (Millie Kresevich, 2007), issuing periodical bulletin such as loss prevention news update, reviewing shrink incidents logbook to study trends, executing an effective loss prevention training program, in case it is needed.

Loss Prevention by Use of Technology

Technology is considered to be the cornerstone of any loss prevention effort to combat shrink in retail industry, accordingly, investing in more technology to close potential leaks is another possibility to deter theft.

1) Electronic article surveillance system strategy

This system is an integral part in theft deterrent, based on actual operation of the case study store. In the case study store many leaks have been identified that can be plugged by using technology. For example, expansion of the electronic article surveillance (EAS) tag penetration to include all targeted categories. In other words, security tags penetration is the first priority to deter external theft. In addition, source-tagging must be given priority over store-tagging to ensure maximum security of tagging process. System check can be performed as frequent as every 2 hours and documented in the EAS activation log book. In addition, alarm logbook should also be reviewed by front store manager daily. Creating a new logbook is also another possibility to keep track of merchandise involved in uncovered shoplifting incidents and collection of data of most targeted merchandise

2) Video Surveillance monitors

In order to deter theft before is too late, it is critical to install surveillance monitors in the lunch room, receiving area, store accounting office and in the beauty boutique. Currently, there is only one computer terminal for video surveillance. In addition to that there should be;

- More camera coverage, motion activating cameras to cover more dead-zones.
- Routine checking of security surveillance by staff four times a day, installation of bigger TV screen at lunch room for better coverage.
- Photos of repeat suspects to be printed out and used confidentially to familiarize staff with them.
- Documenting theft incidents in detail to identify trends for developing pro-active plans to deter theft.

Conclusion and Recommendations

Theft has been approached and treated from three different aspects; operational, human resources, and technology aspects;

Operational Treatment

In addition to the execution of an effective control procedures outlined in the discussion section in regard to receiving, inventory control activities, cash control, and physical security, recommendations based on this project findings and best practices from literature review are prepared as follow.

1) Merchandising strategy

    - Following the lead of some retailers, high ticket items such as electronic devices and appliances should be kept in locked displays, this practice should be accompanied with an effective customer service.
    - Improving or maintaining higher visibility possible amongst store aisles by removing extra stocks from the upper shelves that impede video cameras or create hiding zones for shoplifters.
    - Reducing quantities displayed of high ticket merchandise to help detecting lost items more easily.
    - Rotating high target merchandise.
    - Known loss track sheet to be filled in as losses are identified and filed in a receiving area to help compile data regarding theft incidences.

2) Returns management

- Key employee such as cash supervisors should be at return desk as far as possible.
- Surprise audit to be carried out by cash manager.
- Conduct customer call back, to discover fictitious returns.
- Documentation of trends in the Returns logbook.

3) Maintaining free floor person on business peak hours preferably a shift supervisor.
4) Meeting planned productivity metrics should not be on the expense of exposing store to shoplifting.
5) Employee key performers should be scheduled on busy hours.

HR Treatment

Human capital is the cornerstone of any loss prevention program, therefore, HR department should always "Think shrink" if the company plan to reduce shrink.

1) Avoiding costly hiring process, pre-screening and reference checking are critical steps on selection and recruitment of new hires. Hiring the right candidates is the first step in combating inventory shrink, (Diane Filipowski, 1993).
2) Addressing part time employee issues are recommended. For example, flexible schedule, job satisfaction, and providing positive work environment to reduce the risk of inventory shrink.
3) Employee engagement is very important for successful loss prevention efforts. It is an HR prime function to collaborate with the management team so that to keep staff adequately trained and highly motivated. Besides offering competitive compensation

package, HR department should also ensure a sound retention strategy in place to help reduce employee turnover rate.

4) Creating a customer care associate position will not only help deter theft but also will improve the overall service level in the store and drive incremental sales.
5) Building a loss prevention team is also critical to increase the awareness and to create loss prevention culture that may make loss prevention everybody's business. Communication of shrink figures as well as theft incidents to staff regularly should be part of on-going loss prevention programs.

Technology Treatment

Effective utilization of current available technology in the store should be thought before further investment in more technology. The study of the actual operation of the case store helped in the identification of many leaks that could be plugged by;

1) Electronic article surveillance (EAS) system strategy;
   a) EAS tag penetration to be expanded to include wider range of high theft target merchandise.
   b) Requesting source-tagging from vendors to ensure maximum security of items.
   c) Frequent audit on tags and alarm system, and also system checks be performed frequently and the logbook to be reviewed on daily basis.
   d) Using best practice of EAS activation logbook to keep track of merchandise involved in uncovered shoplifting incidents.

2) More surveillance screens are critically required to be installed in lunch room, receiving area, accounting office, and beauty boutique counter for a better chance of having life snap shots of stores' aisles, thus, more timely reaction to theft.

3) At corporate level, the company should consider the institution of RFID technology.

Limitations of the Study

1) Specific theft techniques are not traceable.
2) Internal and external types of theft cannot be determined separately even though it is widely discussed in reviewed literature
3) No available comparative data from other retail outlet.

Areas for further research

- Future research may be done to study the feasibility of customer care associate- out of store budget- to reduce shrink.

- Research can also be done on assessing shrink using cost effective method to determine types of shrink.
- Determination of an optimum employee mix (Part time to full time) that optimize shrink level.

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