

## WHITE PAPER

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# Total Cost of Ownership for Point-of-Sale and PC Cash Drawer Solutions: A Comparative Analysis of Retail Checkout Environments, 2006 Update

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## IN THIS WHITE PAPER

This white paper presents a total cost of ownership (TCO) analysis of IBM's point-of-sale (POS) solutions and PC cash drawer (PCCD) solutions running on IBM PC platforms in the United States and Europe to uncover the actual costs associated with both systems over their lifetime of use. The goal of this white paper is to help retailers understand the differences in total costs between POS and PCCD checkout systems as they evaluate future purchases.

## EXECUTIVE SUMMARY

Consumers are becoming more demanding, and as a result, retailers are continuing to place more focus on the consumer shopping experience. This consumer-centric strategy, plus the fact that the retail industry is dominated by a few extremely large players, requires retailers to continually challenge the way they do business in order to differentiate themselves in new and innovative ways. Both line-of-business (LOB) and information technology (IT) executives in the retail industry are facing a number of decisions about how best to meet the opportunities and challenges associated with this transformation.

Data gathered at the POS drives a retailer's business, not only monitoring financial returns daily but also providing valuable information necessary for inventory management, merchandise planning, supply chain management, and customer care.

Retailers make long-term checkout solution decisions with the mindset that the in-store technology needs to support their business for several years. Therefore, the costs and benefits of the POS devices must be clearly delineated to support retailer spending decisions.

With this information in mind, IDC conducted a series of interviews with retailers in the United States and Europe. This research focused on companies that had deployed either PCCD or POS solutions throughout their organizations and sought to identify the implications of investment in either option. The study aimed to define for retailers the TCO and the functional benefits of using these systems.

## **Total Costs**

POS technology continues to be haunted by the standard perception in the retail environment that it is more expensive to purchase and maintain than PCCD technology. IDC research indicates that this is not the case. While POS systems are more expensive to purchase, the operational costs are such that within the first year of ownership, the total cost of PCCD passes that of POS. PCCD costs on average over 31% more than POS after five years of use. Beyond the total costs, IDC's research and analysis uncovered the following findings:

- ☒ When analyzed individually, system hardware costs, peripheral costs, software costs, and staffing costs are all cheaper over the life of a POS system than a PCCD system.
- ☒ POS systems offer improved customer experience by speeding up transactions by 44% while delivering 15% improved availability over PCCD.
- ☒ Asset utilization of POS systems is greater than that of PCCD systems due to the lower costs per customer served and longer life span of POS systems.

As retailers seek to take advantage of the benefits of new in-store applications and overall operational efficiency, they must weigh the relative costs and benefits of the two system technologies when making the final purchasing decision. PCCD offers lower up-front costs for the basic system, more product choice, and some compatibility with other back-end technologies. Because they are purpose-optimized for the retail environment, POS systems offer the key advantages of retail-hardened durability, specialized installation and technical support, and most importantly, lower total cost.

## **SITUATION OVERVIEW**

Because the retail industry remains highly competitive and cost-sensitive, even the smallest shifts in the flow of profit and customer service can result in a major advantage. Over the past few years, retailers have faced a number of specific challenges, including:

- ☒ A few dominating large players
- ☒ New information via the Internet that has made today's consumer more demanding than ever before
- ☒ Blurring of retail subindustry lines
- ☒ Fragmentation of shopper demographics
- ☒ Emergence of multichannel retailing

Leading retailers realize that to address these challenges with a consumer-centric strategy means creating an in-store environment that consistently fulfills customer expectations. Retailers that are willing to invest in improved store operations processes, better education, associate training, and new technologies to enhance the

customer experience will increase market share and also improve operational efficiencies. These retail leaders are investing not only in technology to upgrade traditional in-store applications such as POS (which represents the majority of retailers' investments) but also in inventory management, replenishment systems, customer relationship management (CRM) systems, and self-service technologies. All of these technology investments are undertaken in order to improve both store process efficiencies and the customer experience.

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## **POS Transactions Establish Core Retail Data**

Since the mid-1990s, the retail industry has seen some impressive changes in the use of technology to enhance profit, with PCCD and electronic POS solutions providing invaluable data. Data gathered at the point of sale drives a retailer's business, not only monitoring daily financial returns but also providing information necessary for inventory management, merchandising planning, supply chain management, and customer care.

Retailers make long-term checkout solution decisions with the mindset that the in-store technology needs to support their business for several years. However, as a group, retailers typically delay needed store technology purchases, resulting in legacy systems that are difficult to maintain and integrate into modern store infrastructures. As a result, their technology had fallen behind the times. This mindset has been changing, and for the past few years, retailers have made technology investment a higher priority. Although this trend is continuing, retailers are taking a more pragmatic approach toward this investment. Therefore, the costs and benefits of the POS devices must be clearly delineated in order to aid retailers when they are making decisions on spending.

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## **Total Cost Analysis of IBM's POS and PCCD Solutions**

In 2006 we updated our TCO analysis of PCCD and electronic POS checkout systems. We used a model based on the experiences of users of IBM's products over a five-year lifetime of use in the United States and Europe. The research covered nearly 6,500 locations from 36 different retail operations (see Table 1 for further details). While some regional differences exist, POS customers tend to be larger companies with more distributed operations.

The model matched the costs of the two systems against the benefits businesses received. The main challenges that retailers face when deciding to buy checkout systems are:

- ☒ **Understanding total costs.** Retailers need a clear picture of all the costs associated with purchasing a POS system so that budgets can be planned and justified.
- ☒ **Improving the customer experience.** Every technological investment should support the customers' shopping experience without harming normal operations. The standard requirement now is that the investment should raise customer satisfaction and improve normal operations.

- ☒ **Maintaining 24 x 7 performance reliability.** The checkout is the most crucial step in any shopping experience, and retailers cannot afford for checkout systems to fail at any time. Maintaining 24 x 7 performance reliability becomes increasingly important as retailers extend their hours of operation to meet customers' needs.

**TABLE 1**

Respondent Profile		
	Europe	United States
Respondents	15	21
Locations	2,967	3,532
Retail segments	% Breakdown	
Specialty	63	
Food services	14	
Grocery	7	
Other	16	
	% POS	% PCCD
Employees (<500)	25	74
Locations (<100)	37	62
Systems (<500)	39	63

**Total Costs**

Previously, PCCD solution providers emphasized low cost and provided bare-bones solutions with few peripherals tailored to the specialized retail environment. PCCD was clearly less expensive up front, but because of the capabilities gap, customers were paying less and getting less. Today, as PCCD solutions come with more capabilities, the initial cost differential has narrowed, and in some cases, initial hardware and software costs now favor POS. POS systems still have higher initial costs than PCCD, primarily because of the installation labor costs (see Table 2 and Figure 1). However, POS's lower operating costs mean that within the first year, POS becomes the lower-cost solution. After three years, because of operational costs, PCCD is 30% more expensive, and at five years, the gap widens to over 31% as PCCD customers replace 100% of their systems, an expense POS customers will not encounter for another two to three years.

**TABLE 2**

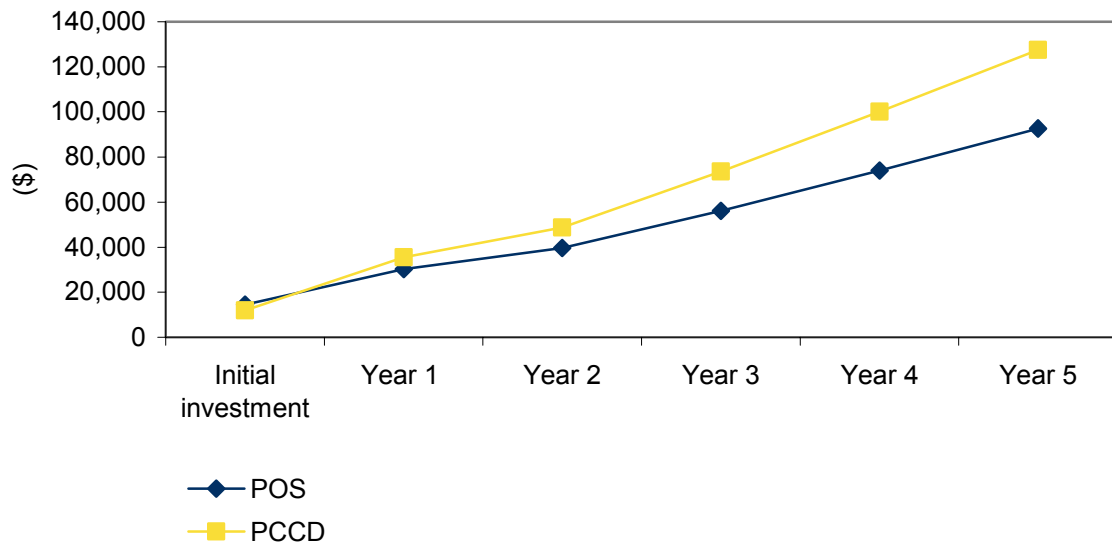
## Total Costs per Checkout System (\$)

Segment	Initial		Year 3		Year 5	
	POS	PCCD	POS	PCCD	POS	PCCD
Software and peripherals	406	716	406	836	433	996
System	2,826	2,958	3,839	5,128	3,754	3,851
Staffing	11,196	8,311	38,012	54,520	50,623	74,776
<b>Total</b>	<b>14,428</b>	<b>11,985</b>	<b>42,261</b>	<b>60,490</b>	<b>54,815</b>	<b>79,629</b>

Source: IDC, 2006

**FIGURE 1**

## Total Costs per Checkout System



Source: IDC, 2006

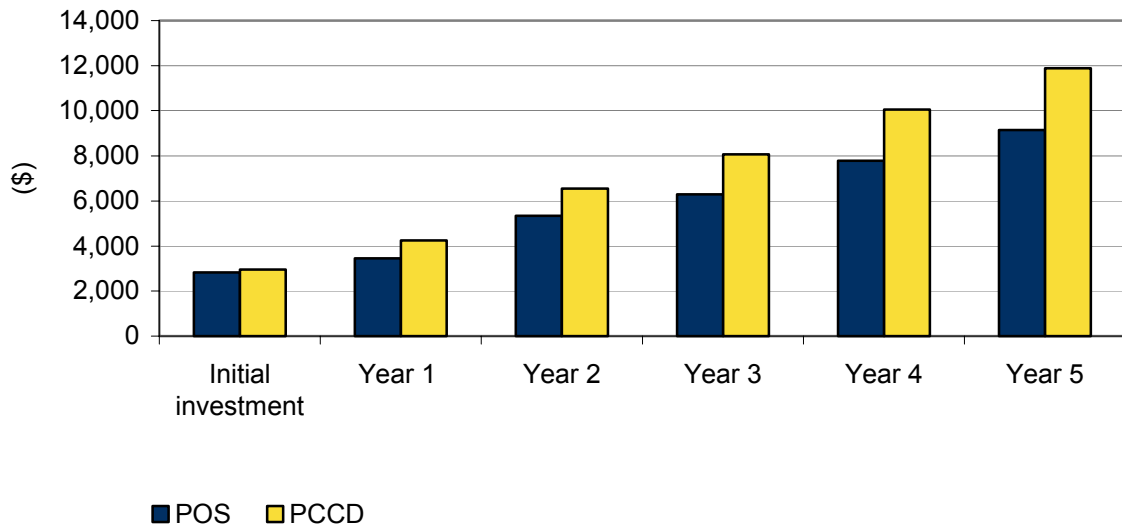
The overall savings are multiplied many times over when we account for the fact that buying checkout solutions often involves purchasing equipment for many stores as part of a chain. To underscore these points, we note that the average difference in initial costs per unit between POS and PCCD is \$2,443 in favor of PCCD. By year three, PCCD costs per unit exceed POS by \$18,229, and by year five, the average difference in total costs between POS and PCCD reaches \$24,814 per unit in favor of POS. If we look at the data another way, we note that PCCD costs on average over 31% more than POS after five years of use. If we assume a discount rate of 12% (the standard discount rate used in IDC models) and apply this rate to the average savings of POS over PCCD for each year over five years, we calculate a net present value of \$21,348 in savings. To better understand the differences between these two solutions, we break down the individual costs that are involved: system, software and peripherals, staffing, and other costs.

***Understanding Ongoing System Costs***

Figure 2 shows that the initial costs of buying checkout systems slightly favor POS (5%). However, the figure also shows that when ongoing costs are taken into account, POS is consistently more cost-effective than PCCD over time (average 23% lower costs annually).

**FIGURE 2**

System Hardware Costs per Checkout System



Source: IDC, 2006

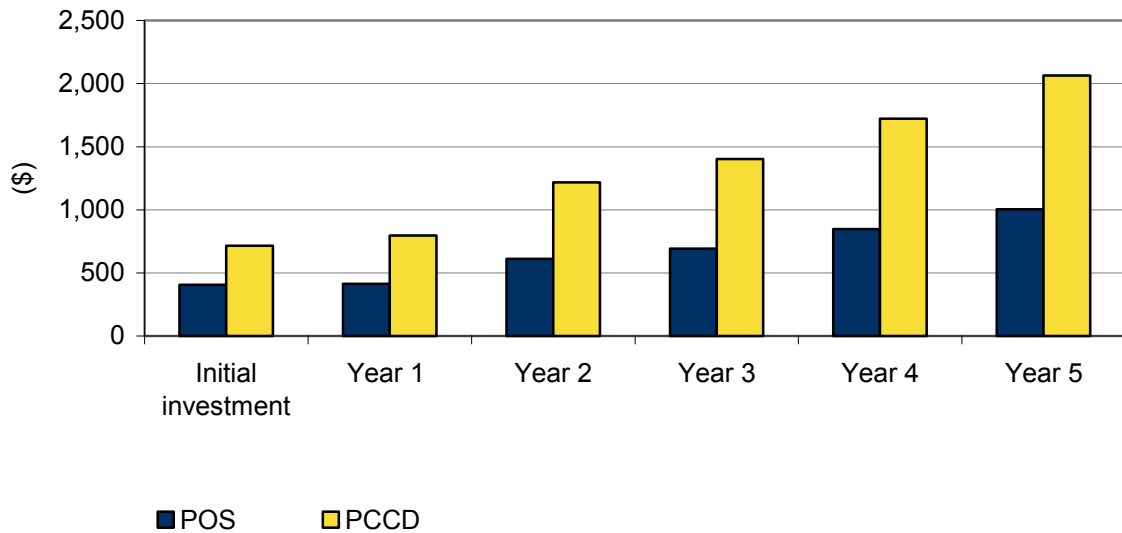
### **Software and Peripherals Costs Are Also Ongoing**

In IDC's opinion, investments in supporting software and peripherals for any checkout system are as important to consider as the initial costs. New POS application functionalities have shorter development cycles than hardware platforms. Additionally, with PCCD, applications need to integrate store back-office applications and enterprise applications that will likely be upgraded more frequently than POS system hardware. Peripherals also tend to have shorter refresh cycles than POS system hardware because of heavy use and new developments. Retailers evaluating their options need to consider when they plan to upgrade software and peripherals and determine which POS system best supports their needs while keeping costs to a minimum.

As Figure 3 shows, the research supports POS over PCCD in terms of ongoing peripherals and additional software costs. Regardless of the geographical variations, annual operating costs for software and peripherals for POS are nearly half the costs for PCCD, partly because PCCD requires far higher levels of maintenance and upgrade.

**FIGURE 3**

Peripheral and Software Costs per Checkout System



Source: IDC, 2006

### **Optimizing Staffing**

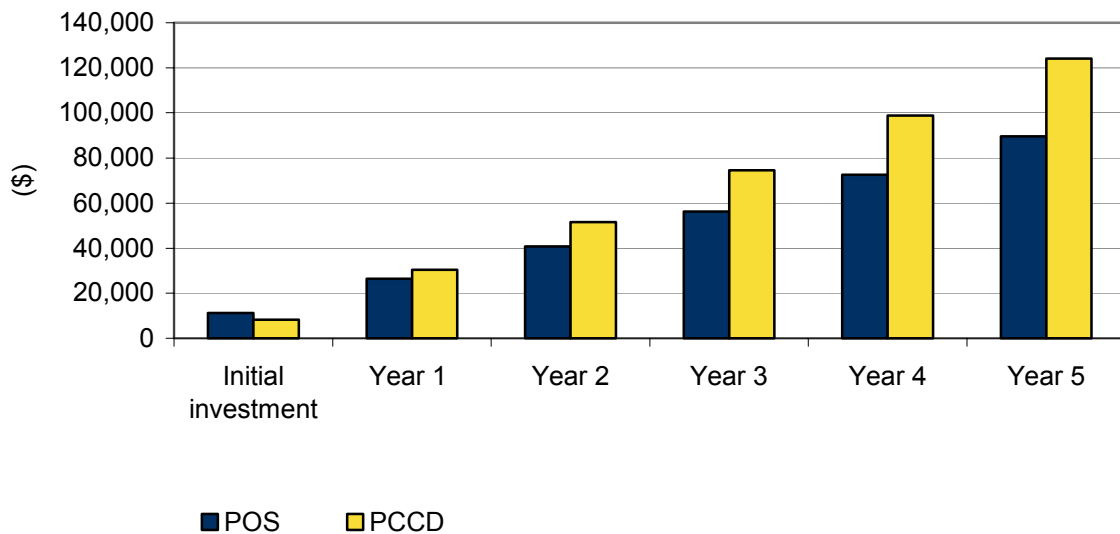
It is impossible to review the differences between the two systems without looking at staffing costs. When included in the total cost of each system per unit, staffing costs make up the largest portion of total costs by far (70–90%). The results of the research show that even though more time is needed to install and launch the more sophisticated POS and to train the staff that will use it, the total cost difference

between POS and PCCD still favors POS (see Figure 4). According to the interview responses, the reason is that POS has a faster rate of serving customers and therefore requires fewer total staff hours, even within the first year. The higher throughput of POS compared with that of PCCD also means greater sales volume in the same amount of time, further offsetting POS training costs.

POS also enables better information management as well as more reliable stock processing and product identification. All of these benefits improve productivity in the retail environment and result in a more efficient relationship with customers. Such advantages, along with shorter sales transaction times and increased throughput, are especially important for retailers with high staff turnover rates to remember when comparing POS with PCCD.

**FIGURE 4**

Staffing Costs per Checkout System



Source: IDC, 2006

***Business Benefits***

**POS Systems Enhance Customer Experience**

Short lines and speedy service are major considerations for retailers installing either system. There are obvious benefits in terms of the number of customers served, which results in an increase in sales. Although the information is influenced by store size, it is evident that POS delivers faster service and thus reduces the amount of time customers spend in checkout lines.



Whether the store is small, large, or part of a chain, customers will spend less time in line when POS is installed. Speedy customer service is as important to a small retail convenience store as it is to a specialty retailer, which sees sharp peaks during the day. Obviously, the less time customers have to wait for checkout, the more likely they are to return.

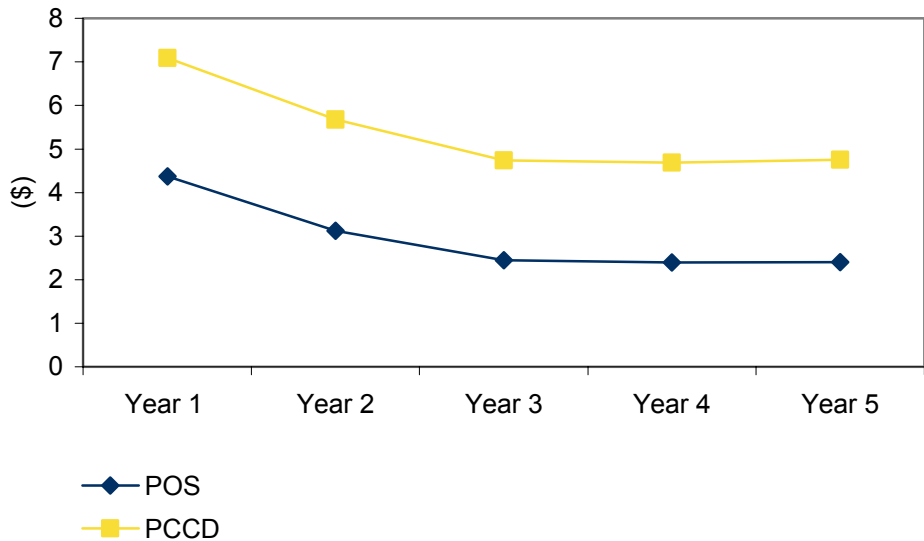
Another benefit is that store managers are able to reassign employees to other shop floor customer service duties, such as answering queries. The flexibility that companies realize as a result of using POS technology fosters customer loyalty, helps keep operating costs low, and is a key indication of how specific in-store technology can have a dramatic impact on customers' shopping experiences.

### ***Asset Utilization Is Better with POS Systems***

To retailers interviewed, efficient service is fundamental to the choice of technology. IDC's model also looked at the costs per customer served on each system. The clear winner on this measure is POS, as Figure 5 shows. This significant cost difference is due partly to the quicker customer service achieved with POS, as evidenced by the interview responses. Put in actual numbers, the average total PCCD system cost per customer served is between 38% and 48% greater than that of POS. Rapid service has evident benefits for customers, and it is just as crucial for retailers that are trying to get the most out of their IT investments. Having spent the money, retailers will want to keep operating costs low, whatever the customer base. On this measure, the TCO model and research clearly demonstrate that reducing costs per customer favors POS.

**FIGURE 5**

Costs per Customer Served



Source: IDC, 2006

Retailers interviewed also commented that POS had improved their overall operating efficiency. Their POS system extends beyond traditional systems management boundaries to support systems management efforts, aligning these efforts with a company's core business processes. The system's ability to link up through both local and wide areas allows the streamlining of ordering and a quick, flexible response to new or localized retail opportunities. It also allows for intelligent use of stock storage, making the flow of products more efficient and therefore more profitable.

Retailers tend to support longer replacement cycles for POS solutions, even in retail operations where both PCCD and POS solutions are used (see Table 3). When the lifetime is spread across a chain of stores, the dollar effect of the longer lifetime for POS is widened. The research model confirms that POS consistently delivers benefits for up to 70% longer than PCCD.

**TABLE 3**

Key Performance Metrics			
	POS	PCCD	Cost Impact
Flow rate (customers per hour)	20.47	14.20	Over five years, POS costs per system will be over 31% less than PCCD costs per system, but POS costs per customer will be 44% less than PCCD costs per customer.
System life span (years)	8.17	4.57	POS system costs will be 30% less than PCCD system costs at three years and over 31% less at five years.
Downtime (hours per year)	0.71	0.84	Downtime increases annual staffing costs per system by \$273 for POS and \$581 for PCCD.

Source: IDC, 2006

## CONCLUSION

As retailers seek to optimize their IT infrastructure to support their business goals, their focus is on bottom-line results. IDC's analysis of POS and PCCD systems in retail environments reveals clear and compelling advantages, notably lower costs and improved customer service, for POS over PCCD. We conclude the following from our analysis:

- The TCO model verifies that POS is the lower-cost option, despite the initial price, even within the first year of operation.
- The full extent of the advantages associated with POS is obvious when the true costs of operation are taken into account, as validated by interview respondents.

- ☒ There is a widening gap between the average annual costs for POS compared with those for PCCD over time (refer back to Figure 1). This means that the cost advantage for POS is greater the longer it is in use. Over the life of the systems, these cost differences have a major impact on the bottom line.
- ☒ POS provides potential benefits to the top line as well. By enabling higher throughput and reducing downtime, POS improves customer service and reduces the number of abandoned carts and customer churn.

These are financial measures that every retailer appreciates, both in challenging market conditions and during good times. Features have also been identified by some respondents as fundamental to their decision to invest in POS over PCCD.

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## **Methodology**

This IDC white paper has been developed through a process of in-depth interviews with IBM POS customers and IBM hardware customers who had deployed PCCD solutions. The data from the interviews, coupled with TCO modeling and analysis, provides a five-year view of the total costs to operate POS and PCCD solutions in typical retail environments.

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