



**Market insights drive the next generation  
of IBM Self Checkout solutions.**

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**Executive summary**

The IBM Self Checkout solution portfolio is designed to help retailers to capitalize on the growing consumer acceptance of and desire for self-service opportunities. When creating its next generation of self checkout solutions, IBM commissioned market research to determine what improvements retailers and shoppers wanted to see. IBM then leveraged the ensuing research information to further enhance its line of self checkout solutions. This white paper discusses the research approach and areas identified for improvement. It also describes the enhanced usability and market-driven design of IBM's newest portfolio of self checkout solutions that help address the pain points voiced by both retailers and users.

**Research nets key improvement opportunities**

Self-service permeates a variety of customer interactions, including automatic teller machines (ATMs), pay-at-the-pump vehicle fueling and airline self check-in. Consumers who are exposed to the technology, such as self checkout in do-it-yourself and grocery stores, are often taking advantage of it. According to a 2006 analyst study, speed and convenience were the two most cited reasons for using self checkout.\* Self checkout seems to provide a level of control that shoppers demand, and they believe it to be a faster means of checking out. According to this same study, consumers spent over US\$110 billion on self checkout transactions, up 35 percent over 2004.\*

To determine key enhancement opportunities for its self checkout systems, IBM commissioned market research in the United States and Europe with 156 consumers shopping in retail stores of top retailers. IBM also conducted internal surveys with its retail clients. These research projects were managed by the IBM Retail Store Solutions Experience Design Group, which includes IBM personnel with extensive experience in market research, human factors, industrial design and self checkout product development and marketing—specific to the retail industry.

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**Highlights**

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***Shoppers want an exceptional experience—one that includes a faster, more intuitive self checkout process.***

***Retailers want more flexibility in deploying self checkout solutions.***

The results revealed a range of preferences and needs from consumers and retailers. Shoppers want an exceptional experience – one that includes a faster and more intuitive self checkout process – and offered opinions of current self checkout machines, including the following:

- *Peripherals, such as receipt machines and personal identification number (PIN) pads, are sometimes placed in hard-to-reach locations that can be ergonomically challenging.*
- *Devices, including cash and coin acceptors and dispensers, are not organized in a logical process flow.*
- *Space to place handheld baskets and to bag items is often insufficient.*

Retailers want more flexibility in deploying self checkout machines, as well as products that further increase reliability, while improving cash management. For example, retailers are looking for:

- *Additional bagging area sizes and options to fit more store formats.*
- *Improved cash handling and more secure cash management.*
- *Flexible configuration capabilities – the ability to handle various order sizes and transaction volumes, as well as back-to-back placement options, to accommodate front-end space constraints.*
- *Units that can endure heavy use in self-service environments.*

Based on these findings, IBM then conducted internal usability studies and worked to improve each aspect of the user experience, while helping to increase the durability, flexibility and cash management of its next-generation self checkout portfolio to meet retailer requirements.

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Highlights

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*IBM enhanced the design of its self checkout solutions to help retailers improve customer satisfaction and loyalty, while helping to increase throughput.*

**Enhancements to IBM Self Checkout solutions**

To help retailers enhance customer satisfaction and loyalty while potentially increasing throughput, IBM enhanced the ergonomic design of its self checkout solutions with several first-to-market features—resulting in improved transaction flow to help create a faster, easier checkout experience.



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***“We’re quite excited about IBM’s new hardware design, with its intuitive flow and above-counter placement of devices, making it even easier for our shoppers to use self checkout.”***

*—Don Miller, assistant vice president, equipment purchasing, Hy-Vee*

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Enhanced ease of use

Now organized for a more logical, intuitive checkout flow, all cash and coin acceptors and dispensers are positioned above the counter. To help shoppers scan items more comfortably, IBM offset the conveyor and bagging areas, moving them closer to the shopper. IBM also installed new sensors on the belted solution to stop belt movement when the transition plate is lifted, helping to reduce the chance of items becoming stuck in the moving conveyors.

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**Highlights**

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***The enhancements to IBM Self Checkout solutions help improve transaction flow for a faster, easier self checkout experience.***

***Additional bagging options and enhanced configuration flexibility help retailers make efficient use of floor space and help speed the checkout process.***

Lowering the countertop height to 32 inches (81 centimeters) helps improve accessibility for disabled individuals.

**Faster payment and checkout**

Placing bill and coin acceptors and dispensers together, above the counter, is a first-to-market feature among major self checkout suppliers. The new position puts the devices in a better location for transaction flow, making them easier to reach, and helping to speed payment and checkout. Now, bills and coins are dispensed from one location, in clear view of the shopper. In addition, the bill dispenser is equipped with a warning alarm that is designed to remind consumers to take their change. The signature capture pad, stylus and coupon deposit slot are now immediately in front of the consumer for easy access. Components with which shoppers interact are illuminated, making it easier for users to complete their transactions. With forward- and back-adjustable displays – another first-to-market feature developed by IBM – store associates can reduce screen glare for better visibility. A larger workspace in the front and more room in the bagging areas are designed to make it easier for shoppers to process/scan and bag their items.

**Increased flexibility**

IBM redesigned the bagging areas and options across the product line, adding carousel options for the scan-and-bag unit and larger bagging areas for the belted units, to help retailers make the most efficient use of floor space and help speed the checkout process. Increasing the bagging area by 20 percent on the Model 171 provides additional space for merchandise. Shoppers can now sort and bag large and small orders more efficiently thanks to redesigned rollers on the belted solution. By using the order divider, two shoppers or store associates can use the unit simultaneously – one customer can scan while another is bagging the previous order.

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**Highlights**

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***Flexible IBM Self Checkout solutions allow retailers to create unique self checkout configurations.***

**Improved cash management**

Retail-friendly bill and note cassettes are designed to be smaller and easier to handle and replenish in the store environment. An easy-to-load, six-coin hopper option has four times the capacity of standard cassette-based dispensers, helping to reduce the frequency with which associates need to refill change.

**Enhanced throughput**

The flexibility of IBM Self Checkout solutions is designed to help retailers improve throughput in many store sizes and layouts. Retailers can place units back to back or in a variety of arrangements to create unique self checkout configurations that work for them.



This not only helps optimize front-end fit and accommodate space constraints, but also allows retailers to manage different traffic volumes and transaction types that vary by store or chain. For example, a new six-bag carousel design with an optional secondary shelf allows for higher capacity in a shorter footprint.

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**Highlights**

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***Durable hardware components in all IBM Self Checkout solutions help enhance reliability.***

***Additional optional features provide retailers with even more choices to meet the requirements of their specific self checkout environments.***

***Soliciting real-world user input, IBM incorporates numerous market-driven design improvements to enhance the self checkout shopping experience.***

**Easier serviceability**

Placing the security controller, main processor and uninterruptible power supply at the front of the unit – in a pullout drawer below the scanner and inside the core module – helps facilitate easier service access. And a new roller design in the bagging area can be lifted for simpler maintenance, adjustments and cleaning.

**Improved reliability**

The durable hardware components used in all IBM Self Checkout solutions help enhance reliability. Stainless steel counters are easy to clean, attractive and built to help withstand the retail environment. Reinforced hinges are designed to hold up to daily opening and closing, while sturdy locks help provide enhanced security and improved durability. Optical sensors in the transition plate signal the conveyor belt to stop when the transition plate is lifted for cleaning.

**More optional features**

Based on retailer feedback, IBM now offers retailers even more feature choices. While cash devices remain in locked cabinets, retailers can opt for a secondary metal door to place the bill and note dispenser behind an additional lock (and a separate key) to help improve security. To facilitate faster large-order, scan-and-bag processing in a shorter footprint, retailers can select a six-bag carousel model with weight security. IBM also offers a full weight security shelf to better accommodate large items. Opting for the stationary shelf versus a pullout basket provides an additional convenience for consumers.

**Why IBM?**

IBM Self Checkout solutions provide new, first-to-market features and an improved ergonomic design to help enhance the shopping experience by making it easier and faster for shoppers to process orders. The next generation of IBM Self Checkout solutions can help retailers enhance customer satisfaction and loyalty, and potentially increase throughput.



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***“ Customer service is paramount for us, and we’ve had very high acceptance of self checkout. We expect that more people will try it when they see the layout and design of the new IBM systems.”***

*—Don Miller, assistant vice president, equipment purchasing, Hy-Vee*

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IBM solicits real-world user input and performs market research to improve its products. The resulting market-driven design improvements are obvious and intuitive – enhanced ergonomic design, more bagging options, cash management enhancements, increased flexibility, easier serviceability and hardware durability.

IBM leverages the more than 150 years of combined retail-specific expertise of its Experience Design Group, comprising market research professionals, human factors engineers, industrial designers and mechanical engineers. A leader in the retail industry, IBM has established a track record through more than 30 years of global experience in the retail sector. IBM is the premier worldwide supplier of point-of-sale (POS) systems – with over 2.2 million POS solutions installed in more than 100,000 stores in over 100 countries.

**For more information**

To learn more about the next generation of IBM Self Checkout solutions, contact your IBM representative or visit:

**[ibm.com/retail/store](http://ibm.com/retail/store)**

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\* 2006 North American Self-Checkout Systems Market Study, IHL Consulting Group, June 22, 2006.