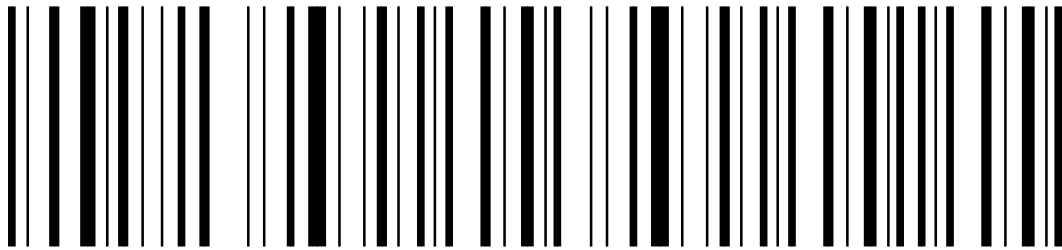


# Service on the Spot:

*Mobile Queue Busting Systems for Improved Customer Loyalty and Sales*



APPLICATION WHITE PAPER

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**Zebra Technologies**



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# Executive Summary

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Investments in sophisticated and expensive customer relationship management (CRM) systems and integrated marketing campaigns that bring customers through the doors are wasted when the customer has a poor experience or finds in-store service lacking. In contrast, simple systems that improve customer convenience consistently provide big returns from improved customer satisfaction, loyalty and sales. That is why queue-busting is such a consistent and proven tactic for improving customer satisfaction.

Less time queuing is a universal benefit that all customers understand and value. Modern mobile transaction systems provide a way for retailers, restaurants, hotels, transportation providers, special event organizers and other service businesses to reduce queues without adding expensive checkout counters or staff. Automated queue-busting systems use mobile computers and printers to add speed, security and professionalism to transaction processing operations.

Mobile queue-busting systems can be adapted for many businesses and applications. To help you understand their capabilities and benefits, this white paper will:

- Define queue-busting and how it works;
- Describe applications in different industries;
- Provide insight and examples from real-world users;
- Outline the labor saving, cost-reduction and customer satisfaction benefits that successful systems provide;
- and
- Provide an overview of the technology components needed to implement queue-busting.

## Introduction

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Queue-busting refers to operations intended to reduce the amount of time customers have to wait to be served. In automated queue-busting applications, a store sales assistant or customer service representative uses a mobile computer system to replicate some of the functions performed at the service counter or point-of-sale (POS) terminal. The mobile system may be used to pre-process part of the transaction to save time at the counter, or may complete the entire transaction on the spot so the customer can bypass the counter completely. Regardless of which method is used, businesses have found the average transaction time for customers processed with the mobile queue-busting system is faster than those served by traditional counter operations.

### Pre-processing at WHSmith

WHSmith, the UK's leading book and magazine retailer, who also operates airport stores around the world, uses an extremely successful pre-checkout application. Implemented just in time to meet the holiday rush, WHSmith reported 50 percent reduction in customer waiting time, improved customer conversion (customers who make a purchase after entering the store) and an overall one percent increase in revenue at the 25 locations where mobile queue busting was used.



WHSmith store assistants equipped with mobile computers and printers scan the U.P.C./EAN bar code on products in customers' baskets while they queue at the register. After all items have been scanned with the handheld computer, a receipt is generated on a Zebra mobile printer that is clipped to the store assistant's belt. The receipt includes a text listing of all items, the total due, and a two-dimensional (2D) bar code that serves as a master record of all the goods in the transaction. When the customer reaches the checkout counter the cashier simply scans the 2D bar code and all the purchased items are automatically recorded in the point-of-sale system without having to scan each item individually. Customers can make the checkout process even faster by checking the receipt they receive from the mobile printer and having their money ready when they arrive at the cashier. The cashier then takes the payment and a queue buster packs items into a bag to save more time at the checkout.

The system was planned and implemented in just seven weeks and provided a rapid return on investment. Checkout counters supported with mobile queue busting processed between six and 12 percent more customers than those without. WHSmith also documented a reduction in the number of customers who abandoned the queues after joining them and walked out of the store without making a purchase, which contributed to the one percent gain in revenues.

### **American Airlines Helps Passengers Fly Past the Counter**

American Airlines, the world's largest air carrier, took a different strategy for its mobile check-in program, which lets passengers check in for their flight and receive a boarding pass without ever stopping at the ticket counter. The Zebra mobile printers American Airlines use are capable of producing secure boarding passes, which enables the airline to prevent long queues from forming by checking in customers at curbside and various places within the terminal. In addition, by printing bar coded boarding passes on receipt stock rather than costly magnetic-stripped card stock, additional savings were realized. American Airlines has won multiple awards for customer service, loyalty and innovation since the mobile check-in system was first rolled out at select airports.

Queue-busting can foster loyalty and repeat business if the customer is buying newspapers and sundries, expensive airline tickets and many other products and services. The following section provides some examples of how mobile queue-busting systems can be adapted to meet the needs of different businesses and industries.


## **A p p l i c a t i o n s**

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The retail, travel and hospitality industries are among the first to adopt and benefit from mobile transaction systems, although the systems can be used nearly anywhere queues may form, including post offices, gaming establishments, restaurants and event venues. Mobile queue busting also solves the problem of space for retailers who don't have any additional room to build more checkouts. Some ideas follow about how queue-busting systems can be adapted for use in different environments.

### **Retail**

Many retailers could follow WHSmith's example and receive similar benefits. In addition to the increased sales and reduced queuing experienced, the retailer also reported gains in labor productivity because the pre-scanning process enabled cashiers to process more customers per hour at the registers. The interaction between queue-busting store staff and customers created new up-sell opportunities-postage stamp sales, for example, rose 10 percent. Besides shortening queues, the application changed idle time spent waiting to revenue-producing selling time. Because queue buster staff have "one-to-one" interaction with each customer there is also a feeling of added customer care and individual service, which potentially boosts loyalty.



Electronics Boutique, an international video and computer game retail chain, implemented a different style of queue-busting application to maximize space in its small, crowded stores. Queues often spilled out of stores during the holiday season, making it difficult for shoppers to reach merchandise. Its queue-busting application provided complete payment processing so customers never had to reach the checkout counter. Electronics Boutique chose Zebra® mobile printers with integrated credit card readers for their staff to wear on their belts during peak periods. The printers were connected by cable to a wireless handheld computer that was used to scan bar codes on merchandise and to run a mobile POS application.

Customers presented their credit card for payment to be swiped through the card reader on the printer. The information was encrypted and sent over a wireless LAN to the store transaction processing system for authorization. Authorizations were processed in seconds and the clerk could complete the checkout transaction. After implementing the system, Electronics Boutique was able to process more customers per hour and saw a corresponding rise in sales. In addition, the retailer benefited by having their employees on the store floor to answer questions, rather than being stationed behind a cash register.

Retailers can further improve the return on investment from their mobile transaction systems by using a printer like the QL Plus series, which can also print labels. In this case, the printer can be used for multiple applications such as shelf labeling, inventory inquiries and item marking on the retail floor, as well as receiving, inventory counting and other back-room applications. Mobile transaction systems can even benefit businesses which aren't usually burdened by long queues because they save valuable store space, make staff more efficient and can make it convenient to process bulky items, customer returns or special promotions with minimal changes to store layout and operations. See Zebra's white paper *Wireless Technology: Solutions for Retail* for more information about the benefits of retail mobile printing applications.

## **Fast Food**

Fast food and other quick service restaurants can use queue-busting systems to process customer orders and payments more quickly. One leading fast food retailer is conducting a trial application similar to the WHSmith system. When queues begin to get long, personnel equipped with wireless mobile computers and printers come out from behind the counter to take orders while customers at the front of the queue are waiting for their orders to be filled. Mobile workers wirelessly transmit the order to the kitchen and generate an order pick-up. The slip includes a bar code summarizing the order and the amount owed, so customers can have their money ready when they reach the counter. There, they present the slip and payment and quickly receive their food. One way the process saves time is by requiring the customer to make their food and drink decision whilst standing in the queue, as opposed to at the counter. Variations of this application could be used at sporting events, concerts and other entertainment events where queues form quickly and customers are impatient to return to their seats.

## **Wagering**

The time-saving performance of mobile transaction systems can increase revenues for operators of race tracks, off-track-betting (OTB) parlors and other wagering facilities, where customers stuck in a queue when the race starts represent lost revenue that can't be recovered. With handheld computers and mobile printers, staff members could work the queues to reduce the congestion, service customers at their seats or accept wagers nearly anywhere in the facility. The wager would be recorded in the mobile device and transmitted instantly to the facility's central system over a wireless network. The mobile printer would then produce a secure betting slip to complete the transaction. Autotote, which provides the most-used wagering system in the world, offers mobile transaction processing featuring Zebra printers and has reported increased revenues from facilities that have implemented it. Casinos and other facilities could modify the application to make many types of wagering more convenient.



## Travel & Transportation

The successful American Airlines mobile check-in system is only one example of the several different ways queue-busting systems can be used within the travel and transportation industries. Train, bus and ferry operators can reduce congestion at terminals by printing transportation tickets, baggage tags and claim tickets anywhere. The same mobile computers and printers used to create tickets and passes can also be used for point-of-sale operations for on-board food, beverage and duty-free sales. Accepting payment cards and issuing receipts with mobile printers, and recording sales with handheld computers improves the convenience, professionalism and accuracy of the mobile sales operation. Equipping transportation workers with mobile computers and printers during the trip provides them with the means to check schedules for passengers and sell them tickets for future travel, helping make the most of their travel time. The transportation provider benefits too, by reducing queues at ticket counters and phone calls to the reservation department.

Mobile equipment must be reliable and convenient enough to efficiently operate queue-busting applications. The following section describes the technology components and features necessary for a successful queue-busting program.

## M o b i l e   T e c h n o l o g y

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Queue-busting applications require a mobile data collection device for capturing and accessing information, application software to process transactions and provide information, and a mobile printer for creating secure receipts, tickets or other documentation. Many queue-busting systems also include a wireless connection to databases or other software stored on a central host computer, although real-time connectivity is not required and applications may be run independent of the host on the mobile equipment. A wide variety of mobile computers and printers are available to suit user needs and preferences, and application software can be custom developed to meet exact requirements if no off-the-shelf package is suitable.

### Mobile Computers

The types and capabilities of mobile computers are too numerous to fully cover here. Some of the most important features to consider for mobile queue-busting are ergonomics, input methods supported, communications capability and how interaction with the printer is handled.

Mobile computers range in size from PDA-style handheld devices to full-screen tablets, and may be carried by hand, clipped to a belt or holster or even worn by the user. The device must be lightweight enough to use comfortably throughout the shift and have a display that is easy to read and respond to. Otherwise, operations will be slow, creating frustration for customers and workers alike. The connection between the computer and printer must be carefully considered to ensure ease of use. Cables have traditionally been used for computer and printer communication, but short-range wireless interfaces such as Bluetooth™ are becoming increasingly common because they improve productivity and ergonomics by eliminating cables that can become tangled, disconnected or broken.

Data can be entered into mobile computers by any combination of key entry, bar code scanning, magnetic stripe or smart card reading, RFID or speech recognition. Pen and touchscreen computers can accept handwriting and digitize customer signatures.



The development of voice-over-IP (VoIP) telephony technology has enabled wireless mobile computers to be used as mobile phones. Although wireless VoIP has not been widely adopted, it offers many exciting possibilities to enhance queue-busting applications. An airline employee could check in late-arriving passengers at curbside then make a call to notify the gate agent of their arrival. Retailers could add voice communication to their mobile point-of-sale stations so clerks could assist customers by calling the stock room or even other stores to check on item availability and print a claim ticket or rain check on the spot. These applications illustrate that mobile technology can provide performance and features traditionally associated with stationary POS and service counters.

## **Mobile Printers**

Mobile printers for queue-busting may be worn on a belt or shoulder strap. Printers are used with mobile computers and interfaced by either a cable or wireless connection. Mobile printers can also have direct connections to wireless networks. Regardless of the design, mobile printers are able to print text, logos, graphics, and bar codes on materials of different sizes and thickness. Some models have integrated magnetic stripe readers for credit card processing and other applications, and others can read smart cards to retrieve customer records and perform transactions. The key printer performance criteria for queue-busting are connectivity, reliability and battery life. These and other mobile printing options and features are described below.

### ***Design and Ergonomics***

Printers are available in a variety of designs to meet the needs and preferences of each mobile workforce. Mobile printers must be comfortable and easy to use or they will not deliver any productivity benefits. While overall weight is important, balance, grip, and ease of carrying and operation should not be overlooked.

There are various carrying devices that make carrying a mobile printer easy such as belt clips, shoulder straps and carrying cases of varying material from waterproof to lightweight nylon. Some mobile printers are designed to stand on a flat surface during the printing process; this feature is often utilized in retail stores where the printer is placed on the shelf while shelf labels and mark down labels are printed.


### ***Power Management***

How the printer manages its power supply is important to overall battery life and application effectiveness. Battery life varies widely based on how the printer is used. Print volume, label size, the amount of wireless transactions, and other factors all affect how long batteries last before needing to be recharged or replaced.

Users should test their applications to ensure that the batteries they use consistently perform as needed and will not contribute hidden expenses to the total cost of ownership. For example, nickel metal-hydrate (NiMH) batteries have a higher initial cost than nickel cadmium (NiCAD) products, but have less performance degradation over time, are more efficient at holding their charge, and have a longer life span. Lithium-ion (Li-Ion) cells represent the latest in mobile battery technology. Though more expensive than either nickel cadmium or nickel metal-hydrate cells, lithium-ion cells offer the highest power-to-volume and power-to-weight ratio of the three. In a typical printer application, a lithium-ion battery pack producing 7.4 volts has 30 percent more power than a nickel metal-hydrate pack, with half the volume and half the weight.

### ***Media***

Modern mobile printers accept a variety of label, tag, ticket and other media for producing durable receipts, claim tickets, return labels, rain checks, parking passes, event tickets and other materials. Gone are the days of portable thermal printers that print only low-quality receipts that curl at the edges. Top-coated media resists ultraviolet light and remains readable for a long time, eliminating the problem of receipts that fade after a



few days. Many types of linerless media are also available, which eliminates the waste and disposal problems associated with peel-away liners used with adhesive labels. Wearable and cart-mounted printers can carry more media than handheld models without negatively affecting convenience or comfort. They can also accommodate larger media sizes than integrated units.

## **Wireless Connectivity**

There are two separate and distinct uses for wireless communications in queue-busting applications and each uses a separate wireless technology. As noted previously, mobile printers and computers may communicate with a host computer system over a wireless local area network. Mobile printers receive data and instructions from the mobile computer, which may be communicated by short-range radio frequency technology instead of a cable. Users have several technology options for wireless cable replacement. Wireless networking, however, is dominated by IEEE 802.11-standard technology. The basic characteristics of wireless networking and cable-replacement technologies are briefly described below. For more information about wireless technology, see the Zebra white paper *The Benefits of Wireless Printing*.

### ***Wireless Networking***

Mobile printers can have direct connections to wireless local area networks (LANs), which can provide coverage indoors and out. The most common wireless networking technology complies with the 802.11b standard, which utilizes the 2.45 GHz frequency band and has transmission speeds of about 11 megabits per second (Mbps). Numerous handheld and laptop computers are available with 802.11b communications, and many Zebra mobile printers have 802.11b communications capability.

The overwhelming majority of wireless public “hot spots” for Internet access use 802.11b technology. This infrastructure is expanding rapidly, which may create opportunities to use wireless LAN-enabled printers and computers for queue-busting applications in public and outdoor environments, including campuses and entertainment districts.

### ***Short Range Wireless***

Bluetooth is emerging as the leading wireless technology to replace cables between mobile printer and computer. Bluetooth is a standardized, short-range wireless technology that enables up to eight computers, printers, and other devices to interface with each other from up to 30 feet (9 m) away, without going through a centralized hub or server. Bluetooth® provides extremely fast and reliable printing because of its data transfer speed and resistance to interference. Other radio technologies and infrared (IR) light are other alternatives for wireless cable replacement in printing applications.

### ***Zebra Wireless Options***

Zebra Technologies supports all the wireless LAN and cable replacement technologies described above. For maximum flexibility, Zebra offers QuickLink™ removable, upgradeable radio modules for its QL and QL Plus™ series' of mobile printers. QuickLink radios come in Bluetooth and 802.11b. The RW series of mobile printers also support 802.11b and Bluetooth.

Wireless mobile printing systems are easy to set up and use. The only difference users notice is the lack of awkward cables connecting the printer to the portable computer. To learn more about mobile printing products and features, see the Zebra white paper *Understanding Mobile Printing Technology and Capabilities*.



## C o n c l u s i o n

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Saving time is a proven, powerful tactic for building more loyal and profitable customers. Mobile queue-busting systems put these benefits within reach of many different businesses because they can save time and add convenience in any customer environment. By harnessing this technology, businesses can keep queues and revenues flowing.

Selecting the right mobile technology will have a significant impact on effectiveness, convenience and profitability the system provides. Zebra Technologies offers the widest range of mobile printers in the industry and supports all the leading communications options. Our products have been trusted in many of the most successful and innovative queue-busting programs used in business today. Contact Zebra today to learn more about how our products and expertise can help improve your operations.



# Notes

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