



Zebra Technologies

Utilizing Mobile Computers to Elevate Efficiency and Patient Care



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Why This First Look?

Shared smart devices are becoming increasingly popular in healthcare as a means of improving communication, streamlining clinical workflows, and potentially consolidating the nurse tool belt. In this report, KLAS spoke to healthcare organizations that are using Zebra Technologies' TC52-HC, a mobile computer, to get their perspective on how well these devices perform, increase operational efficiency, enhance patient care, and meet the unique needs of clinical workflows.

What Does Zebra Technologies Do?

(A Customer Explains)

"The TC52-HC devices are hospital-grade smartphones with a built-in scanner, and we use them within all our units in a certain area. . . We use the system for medication administration, assessment collection, and blood scanning. We also use it for interoperability between our pumps and our EHR, for secure texting with other team members, for uploading photos into the patient record, and for brief documentation. Those are the main uses currently." —Director

Bottom Line

Customers generally feel satisfied with the Android-based TC52-HC. They praise the vendor's proactiveness and support, are happy with the product's integration capabilities, and would buy the system again. Many customers considered iPhones but ultimately selected the TC52-HC because of its durability, battery, customizability, and built-in medical tools (e.g., barcode reader). Customers would like more executive involvement, and some users feel the device is bulky.

Key Competitors

(as reported by Zebra Technologies)

Apple, Ascum, Honeywell, Spectralink

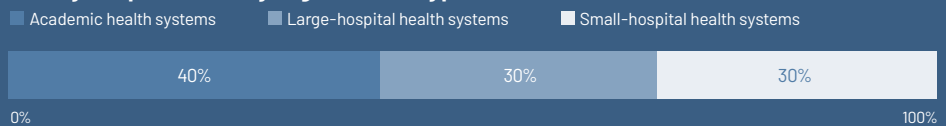
Top Reasons Selected

Hot-swappable batteries (last a full 12-hour shift), barcode scanner, integration capabilities, all-in-one tool kit, sanitizable

Number of Customers Interviewed by KLAS

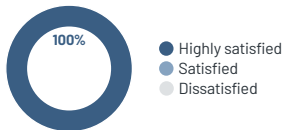
10 individuals from 10 unique organizations (out of 26 unique organizations provided to KLAS)

Survey Respondents—by Organization Type (n=10)

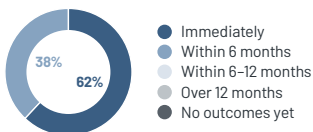


Zebra Technologies Customer Experience: An Initial Look

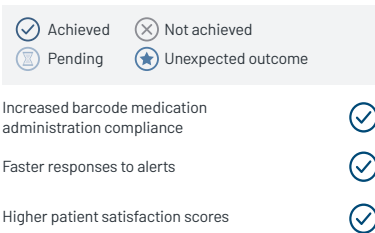
Overall Customer Satisfaction (n=9)



Time to See Outcomes (n=8)



Outcomes Expected by Customers

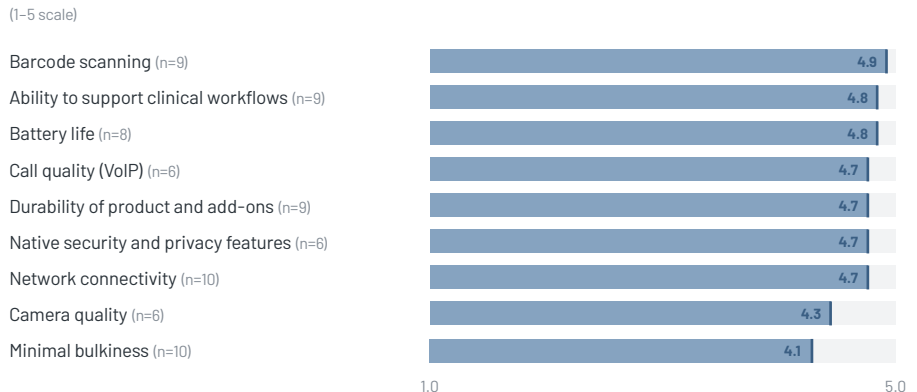


Zebra Technologies—Key Performance Indicators (1-9 scale)



Grading scale				
A+ = 8.55-9.0	B+ = 7.65-7.91	C+ = 6.75-7.01	D+ = 5.85-6.11	F = <5.22
A = 8.19-8.54	B = 7.29-7.64	C = 6.39-6.74	D = 5.49-5.84	
A- = 7.92-8.18	B- = 7.02-7.28	C- = 6.12-6.38	D- = 5.22-5.48	

Key Functionality Performance (1-5 scale)



Strengths

Highly proactive support



"They have been incredibly proactive and ensure that we have everything we need. They let us know when there are updates, and they do quarterly calls to keep us informed. Most vendors are not nearly as proactive as Zebra Technologies. We get lots of great feedback and very quick responses when we have technical problems." —Manager

In-depth healthcare and technical expertise that produces quality training and support

"The vendor has in-depth technical knowledge and training. They did on-site training before COVID-19, and there is online video training. I can talk to somebody who immediately knows what I am talking about, has decades of experience, and has worked with many healthcare customers. That saves us huge amounts of time, and we get better solutions." —Manager

Forward-thinking and supportive partner

"Zebra Technologies has been an amazing partner for us since the very beginning. We are constantly working with the vendor's team on what is next. We keep coming up with new needs for the future. The vendor is always willing to come to the table and help us, and that is pretty cool." —Director

Opportunities

Low executive involvement



"I haven't had any negative experiences with the vendor's executive involvement. But compared to other vendors that we have dealt with, I feel like we don't hear from our Zebra Technologies account executive or the vendor's leadership as often as we could. Compared to our other vendors, Zebra Technologies seems to be quiet." —Manager

Concerns about initial learning curve for new Android users

"There are differences in how users manage product settings on Android versus iOS devices. Some slight software things are a bit confusing. The learning curve is a little larger than someone would get with a consumer-grade device. Once people get used to the device, they find it to be extremely intuitive." —Manager

KLAS' Points to Ponder

The Positives: Zebra TC52-HC mobile computers provide technologies and communication capabilities that enable improved care delivery related to medication management, patient status communications, data collection, and nursing alarms/alerts that can be escalated to ensure patient needs are addressed promptly. The device cameras allow nurses to document patient wounds and to easily upload the pictures into the EHR. Having a single device that is intuitive to use and can accommodate several care delivery processes improves clinician adoption while lowering operational costs.

Organizations should consider the following:

The Solution's Long-Term Viability in Healthcare

A key component of improving the management and delivery of high-quality care is handheld computer devices that support care delivery processes and communications with well-designed functions to accommodate clinician adoption and usage. The Zebra solution is a proprietary, Android-based device that is hardwearing enough to withstand the usage associated with care delivery environments. The Zebra Mobility DNA package adds the diagnostic tools, device tracking/usage functionality, audit trails, and security features that create a complete solution. Zebra's competitors may be some of the third parties they support who advance their own smartphone capabilities.

Impacts and Trade-Offs of the Underlying Technology

Zebra's technology architecture and components appear to protect clients from technological obsolescence while also supporting timely

updates and upgrades to meet clients' advancing needs. Security and data encryption methods mitigate security risks and challenges. Diagnostic and support application bundles reduce maintenance costs. Zebra's mobile computers run on Android OS, which may cause a market challenge for organizations that use both iOS and Android devices. On the positive side, Zebra's focus on Android devices enables lower support and development costs, resulting in more competitive pricing.

Smart Handheld Device Considerations

To be effective, smart handheld devices must have an easy-to-view screen that accommodates needed form factors (i.e., various ergonomic grips and device-use positions). One value-add is hot-swappable batteries that can last 12 hours and can be quickly charged and changed to support shifts 24/7. The devices must be multifunctional to accommodate several clinical processes and communication needs. Devices must have APIs



Mike Davis

HCIT market research and analysis expert with 40+ years of experience

that accommodate integration with related digital applications. These devices should also be hardwearing enough to withstand drops from several feet and to withstand UV light and various chemicals used for disinfection. Having a strong mobile device management strategy is required.

Third-Party Solutions

Zebra has an impressive list of third-party solutions that have been integrated with their smart handheld devices. The ability to integrate Zebra solutions with other care applications adds another level of value for provider organizations, extending the capabilities of the smart handheld solution and minimizing internal overhead to support integration. Zebra uses an array of APIs in their development tool kit to integrate third-party solutions. Security, clinical workflow, telemedicine, and patient safety applications integrate with the devices, allowing providers to add additional capabilities for improving care delivery and quality.

Zebra Technologies: Company Profile at a Glance

Founders

Ed Kaplan
Gary Cless

Year founded

1969

Headquarters

Lincolnshire, Illinois

Number of customer facilities

200-300 facilities (not unique organizations) (Zebra's policies do not allow sharing a specific number)

Number of employees

8,800 in 45 countries

Revenue model

Resellers and distributors sell devices, accessories, charging cradles, batteries, and included software. Additional software solutions and support services are offered via subscription models. Value-added resellers provide additional solutions including device staging, applications, and integration services.

Target customer

All acute care and non-acute care healthcare provider organizations

Healthcare Executive Interview



Anders Gustafsson,
CEO

How would your customers describe your solution?

Zebra's healthcare mobile computers, including the TC52x-HC, TC21-HC, and TC26-HC, ensure that the right patient receives the right care at the right time by equipping clinical and nonclinical workers with powerful, reliable, durable, and secure solutions. This enables teams to efficiently provide high levels of patient care while improving accuracy by being connected in real time to patient data, clinicians, and helpful apps. Frontline providers count on Zebra's devices to perform 24/7, even if the devices are dropped, exposed to liquids, or disinfected with medical-grade chemicals dozens of times a day. Zebra helps healthcare workers stay focused on patient care.

Is your solution integrated into a core system (such as the EHR) or is it standalone?

Zebra devices can integrate into core systems and stand alone. The devices are built for EHR integration and are certified with global EHR vendors. Some of our solutions include integrated barcode scanning, tracking for blood and breastmilk specimens, telehealth, secure communication, and the ability to take and upload pictures into patient records. Integrated apps streamline clinical workflows by enabling nurses to access information and contact colleagues from the patient's side, which allows staff to get more done in less time. Approved apps for our devices include Imprivata's single sign-on and authentication, Rauland's nurse call solution, SOTI MobiControl, Amwell Platform, Halo Health's solution, Phillips' system, Vocera Platform, TigerText, Spok Mobile, PatientSafe Solutions' system, etc.

What is Zebra Technologies' biggest differentiator?

Zebra possesses a long-term healthcare commitment and consistently delivers solutions that push technology's edge. Our solutions include voice and collaboration capabilities, hot-swappable batteries, and wireless connectivity. The TC52x-HC, TC21-HC (which is slightly thinner and lighter than the TC52x-HC), and TC26-HC healthcare devices run on the same platform, OS releases, and LifeGuard security updates. Zebra pioneered mobile computers with disinfectant-ready, healthcare-grade plastics and pioneered enterprise-grade Android mobile devices. We have invested over \$300 million in the Zebra Mobility DNA software platform, which provides a suite of management, security, and productivity tools. Zebra is also the market leader in healthcare printers, RFID tags, temperature solutions, patient wristbands, and integrated barcode scanners.

Solution Technical Specifications (provided by Zebra Technologies)

Cloud environment

Google

Development platform

Application layer-Java, system/base
OS level-Linux/C

Database environment

SQLite

Mobile application environment

Applications developed in Java,
posted to the Google Play store

Security platform

ISO 27001 complaint Mobile products: ISO 19790 and
ISO 15408 compliant

Confidentiality

HIPAA compliant, business associate agreements

Data encryption

Data at rest (DAR) and data in motion (DIM)
are protected by FIPS 140-2 Level 1. Devices
employ both symmetric and asymmetric
cryptography. DAR is protected by AES-256
while DIM is typically AES-128, but higher key
sizes and different algorithms are available

HITRUST certification

No (align with certification, but equipment
suppliers are typically not covered entities)

Other security certification

Common Criteria, FirstNet (TC26), ioXt

Other security compliance

DoDIN APL, DISA STIG

Report Information

Reader Responsibility

KLAS data and reports are a compilation of research gathered from websites, healthcare industry reports, interviews with healthcare, payer, and employer organization executives and managers, and interviews with vendor and consultant organizations. Data gathered from these sources includes strong opinions (which should not be interpreted as actual facts) reflecting the emotion of exceptional success and, at times, failure. The information is intended solely as a catalyst for a more meaningful and effective investigation on your organization's part and is not intended, nor should it be used, to replace your organization's due diligence.

KLAS data and reports represent the combined candid opinions of actual people from healthcare, payer, and employer organizations regarding how their vendors, products, and/or services perform against their organization's objectives and expectations. The findings presented are not meant to be conclusive data for an entire client base. Significant variables—including a respondent's role within their organization as well as the organization's type (rural, teaching, specialty, etc.), size, objectives, depth/breadth of software use, software version, and system infrastructure/network—impact opinions and preclude an exact apples-to-apples comparison or a finely tuned statistical analysis.

KLAS makes significant effort to identify all organizations within a vendor's customer base so that KLAS scores are based on a representative random sample. However, since not all vendors share complete customer lists and some customers decline to participate, KLAS cannot claim a random representative sample for each solution. Therefore, while KLAS scores should be interpreted as KLAS's best effort to quantify the customer experience for each solution measured, they may contain both quantifiable and unidentifiable variation.

We encourage our clients, friends, and partners using KLAS research data to take into account these variables as they include KLAS data with their own due diligence. For frequently asked questions about KLAS methodology, please refer to klasresearch.com/faq.

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Note

Performance scores may change significantly when additional organizations are interviewed, especially when the existing sample size is limited, as in an emerging market with a small number of live clients.



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Our Mission

Improving the world's healthcare through collaboration, insights, and transparency.

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