IDC MarketScape

IDC MarketScape: Worldwide Rugged Mobile Devices 2023 Vendor Assessment
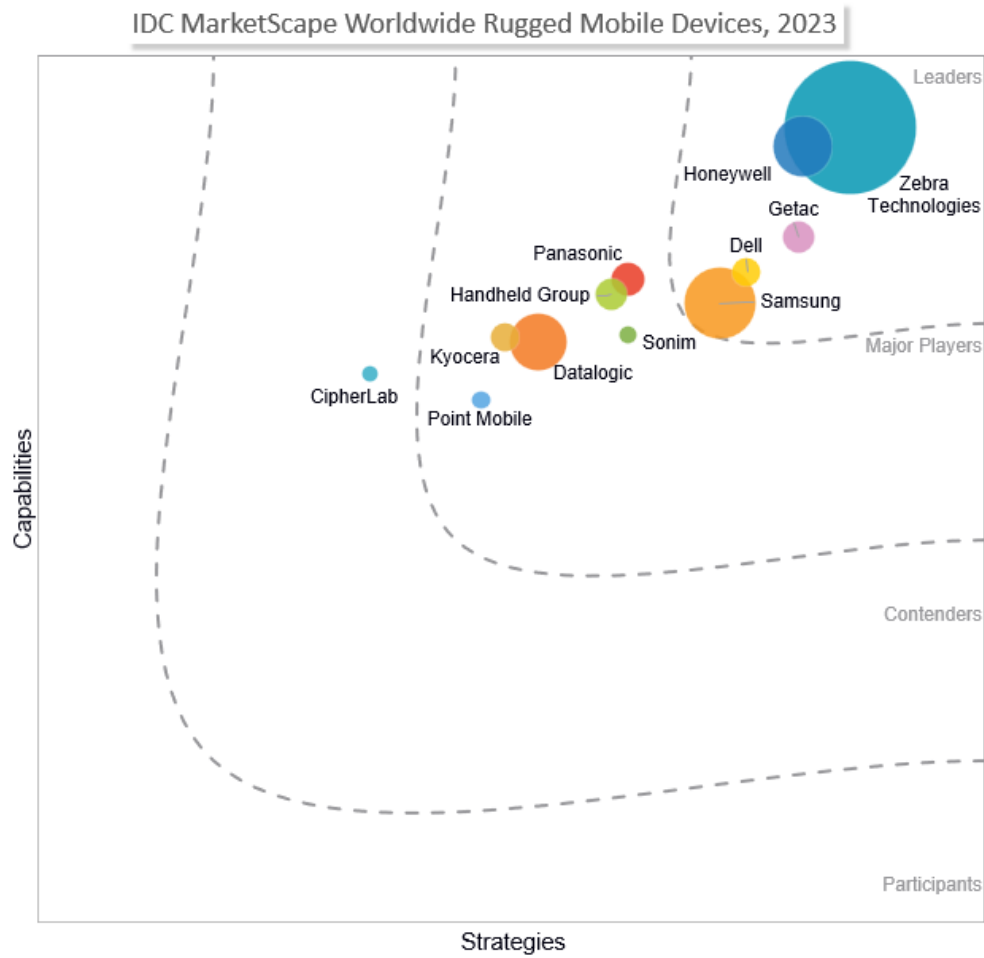
Bryan Bassett

THIS IDC MARKETSCAPE EXCERPT FEATURED ZEBRA TECHNOLOGIES

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Rugged Mobile Devices Vendor Assessment

Source: IDC, 2023

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IDC OPINION

In 2023, rugged mobile devices are mission-critical business tools that are typically designed to serve specific enterprise use cases such as barcode scanning, inventory management, and field communication or enable general mobility use cases in hazardous working environments where hardware durability is critical. Rugged devices offer all the benefits of consumer-grade mobile devices, with increased durability and enterprise-specific features such as dedicated barcode scanners, glove-touchscreen support, high-capacity user swappable batteries, and extra loud speakers, to name a few. Rugged mobile devices primarily enable frontline workers in warehousing, retail, manufacturing, transportation, public safety and hospitals, and field services with the ability to efficiently scan product inventories, track patient health information, log shipments and deliveries, complete work orders, and communicate efficiently and safely in challenging work environments.

Rugged Benefits

In 2022, 38% of U.S. enterprise organizations reported they deploy rugged mobile devices, with another 38% reporting they plan to purchase more mobile devices through 2023. Without question, the primary reason businesses choose to deploy rugged devices is to help prevent damage to the hardware in challenging work environments. Rugged devices are often designed with extremely tough exterior shells, shatter resistant screens, and protected internal components to help protect the device from accidental drops, moisture, extreme temperatures, dust, and electrostatic discharge. Most rugged devices meet a minimum IP65 (ingress protection) rating, and many more also meet MIL-STD-810 (military standard) defense requirements. Essentially, enterprise-grade rugged devices are built tough and are meant to see heavy repeated use in harsh environments.

Rugged devices also can include features and components that make them especially well suited for enterprise use cases, such as dedicated barcode scanners, nonstandard serial ports, multiple connectivity options, swappable batteries, and a range of support accessories that increase the usefulness of the device in a specific workflow. While consumer-grade smartphones and tablets are incredibly capable and sophisticated pieces of technology, they are not designed for the types of enterprise use cases rugged devices have been purpose built for and therefore to not offer the same levels of customization and capability of dedicated rugged devices.

Finally, because of their added durability and narrowly defined workflows, rugged devices often have much longer deployment life cycles than consumer-grade mobile devices. Since they break less often than consumer devices, these devices can last anywhere in the field from three to five years, and most rugged device manufacturers offer additional extended support services to increase the life of the device beyond five years. While this is obviously convenient for the customer from a logistics and deployment perspective, it also frequently translates directly to an overall lower total cost of ownership (TCO) than consumer devices.

Rugged Challenges

One of the core challenges rugged device manufacturers often face is communicating to potential customers that rugged devices do in fact deliver a lower TCO than consumer-grade devices. Because of their added durability, components, and additional features, rugged devices often have a much higher MSRP than a consumer-grade device, even two times or three times as much depending on the device. As enterprise IT departments are becoming increasingly price conscious regarding IT investments, the high price tags associated with rugged deployments present a significant obstacle for new customers.

Compounding the issue with the high up-front costs of rugged deployments is consumer-grade devices themselves. Mobility has fundamentally changed the way people work over the past two decades, and smartphones have been at the forefront of digital transformation in the enterprise. The familiarity of consumer-grade mobile devices among business end users and IT departments alike makes them an enticing solution for enterprise deployments. When combined with their lower initial cost compared with rugged devices, they often end up getting selected for suboptimal deployments where a purpose-built rugged device should be deployed. Educating potential customers on the pitfalls of deploying consumer-grade mobile devices in rugged scenarios is an ongoing but very important challenge to overcome in the rugged market.

Last, by design, rugged devices address a specific set of key workflows in certain industries, meaning they are not general-purpose devices. Unlike consumer-grade devices, they cannot be marketed and sold to consumers and businesses the same way or at the same volumes that smartphones and tablets can be. This means that the overall total addressable market (TAM) for rugged devices is generally limited to certain verticals and use cases, presenting a challenge for broader enterprise growth. However, while rugged devices may not see the level of demand of consumer devices in business, the good news is that there is growing demand and opportunity for rugged expansion in frontline worker mobilization.

Future Outlook

Despite challenges, the future of rugged mobility is secure. Rugged devices perform tasks that consumer-grade devices cannot, and they excel in highly specialized enterprise workflows. As more businesses seek to enable larger segments of their workforce, frontline workers present a clear opportunity for growth.

Historically, deskless frontline workers have been slower to benefit from mobilization efforts than office-based information workers, but this is changing. Frontline work is often manual in nature, task oriented, and many frontline workers spend most of their day on their feet interacting with customers directly, whereas office-based information workers primarily worked with computers, and through adoption, mobile devices naturally helped augment their primary workflows. However, access to mobile hardware, software, services, and connectivity is becoming increasingly essential to frontline workflows. In fact, in 2022, 42% of non-office-based workers (frontline) in the United States were reported to be mobile dependent workers, meaning they cannot physically complete their assigned tasks or workflows without the aid of a mobile device or mobile connectivity.

Whether it be at a warehouse, storefront, hospital, or home doorstep, chances are most manufactured and shipped goods worldwide have at one point or another crossed paths with a rugged mobile device. With increased mobilization efforts targeted at frontline workers, rugged mobile deployments will see increased demand, as will expanded rugged use cases. Businesses require durable, capable, purpose-built mobile devices to enable frontline workers in this second wave of digital transformation, and rugged devices will play a crucial role in these efforts.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

IDC invited vendors to participate based on two key criteria:

- A rugged mobile device offering portfolio that includes (but not limited to) hardware, software, and services designed for B2B mobile deployments
- A rugged product revenue of $10+ million for calendar year 2022

ADVICE FOR TECHNOLOGY BUYERS

Technology buyers should evaluate rugged mobile device offerings with a wholistic view of current and future goals for enabling rugged mobile computing. To that end, the criteria and attributes that are key for IT buyers to consider when evaluating rugged mobile device providers are discussed in the section that follows.

Key Measures for Success

- **Total cost of ownership and return on investment (ROI).** While rugged mobile devices initially cost more to deploy than consumer-grade devices, in the long run, the TCO is usually lower. Compared with consumer-grade devices, rugged mobile devices are expected to have extended deployment life cycles beyond two years (as much as five to seven years) and see heavier day-to-day use in challenging environments. Rugged mobile solutions should present a clear ROI over consumer-grade mobile devices for businesses deploying them.

- **Defined and business-driven use cases.** Rugged mobile solutions should be designed to address specific business-driven use cases, with defined workflows that require the added features and durability that rugged mobile devices provide.

- **Device capabilities.** While increased durability and ruggedness are a core feature of rugged mobile solution, the devices should have capabilities on par with modern-day mobile devices, as well as additional features that make them suited for rugged deployments.

- **Device life-cycle management.** In most cases, rugged mobile devices are intended to be deployed beyond the traditional two-year refreshment cycles of consumer-grade mobile devices. Vendors that offer customers robust life-cycle management services have competitive advantages over vendors that do not.

- **Device support, maintenance, and downtime.** Rugged mobile devices are business- or mission-critical devices. Downtime due to outages, damage, or technical issues translates directly to lost productivity and a reduced ROI. It is imperative that vendors in this market have accessible and reliable customer service and support solutions to assist their customers.

- **Software, security, and operating system (OS) stability.** The ability to maintain a consistent and secure operating environment for users on rugged mobile devices is key. Mission- and business-critical devices must receive timely security updates and OS support over their deployment life cycles. In addition, IT organizations should be given control over when their fleet of rugged devices is updated to ensure application compatibility and workflow continuity. In some cases, rugged devices that update automatically or without the express authorization of the IT organization have the potential to disrupt or break critical business operations.

- **Fleet management.** The ability for customers to efficiently deploy and manage a fleet of rugged mobile devices and rugged end users is paramount to the success of the deployment. Most rugged mobile devices are dedicated corporate-liable devices, and therefore, the ease of management of those assets must be a priority for vendors.

VENDOR SUMMARY PROFILES

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and challenges.

Zebra Technologies

Zebra Technologies is positioned in the Leaders category in this 2023 IDC MarketScape for worldwide rugged mobile devices.

Zebra Technologies offers a wide selection of Android Enterprise handheld, wearable mobile computers, and rugged Android and Windows tablets designed to optimize enterprise workflows in retail, warehousing, manufacturing, healthcare, transportation and logistics, public safety, and field operations. Zebra Technologies led the charge for Android as an enterprise-grade OS among rugged device manufacturers, and its expansive rugged portfolio spans a broad range of hardware, software, and services designed to address the specific needs and challenges of its customers.

Strengths

Zebra Technologies offers one of the market's largest ranges of rugged devices and form factors purpose built for enterprise use cases.

Zebra Technologies offers a comprehensive in-house developed solution ecosystem, in addition to a range of enterprise support features and services.

Zebra Technologies is a participant in the Android Enterprise Recommended program, ensuring its Android devices will receive timely security updates and OS support during deployment life cycles. However, Zebra Technologies also offers its own in-house enterprise services and management toolsets for customers to ensure device support, software control, and security over device life cycles.

Challenges

Zebra Technologies will have difficulty expanding beyond its established enterprise industrial markets as its current devices are so thoroughly tailored to its current target customers' needs.

In the short term, Zebra Technologies may face challenges in communicating the TCO and ROI of its offerings to potential customers that will likely be attracted to cheaper and more accessible consumer-grade mobile devices. However, this challenge is not specific to Zebra Technologies and is reflective of the overall state of the rugged mobile device market. In addition, Zebra Technologies will continue to face increased pressure from established Android OEMs aggressively targeting the rugged market.

Consider Zebra Technologies When

Enterprise organizations looking to deploy rugged mobile devices that address multiple dedicated use cases in warehousing, retail, transportation and logistics, manufacturing, healthcare, public safety, and field operations should consider Zebra Technologies on their list as a provider of rugged mobile devices. The core of Zebra Technologies' mobile hardware offerings caters to high-volume scanning and asset management mobile use cases. However, Zebra Technologies' portfolio of devices is sufficiently tiered by capability and broad enough to meet a wide variety of enterprise use cases.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here, and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior and capability.

Market Definition

The IDC definition of rugged mobile devices includes devices of a handheld, wearable, slate, detachable, or 2-in-1 form factor that are of industrial design, have mobile computing capabilities, are capable of data capture, and have wireless connectivity.

These devices must have a high-level operating system, application processors, and the ability to run third-party applications. Such devices are typically designed for data capture, may have 1D and 2D barcode scanning capabilities, and include onboard intelligence and wireless connectivity to back-end enterprise IT systems. Devices may also include a variety of additional biometric and environmental sensors, as well as touchscreens, voice command, and/or keypad input methods. These devices must have some form of wireless connectivity for data. Connectivity covers a wide variety and includes one or more of the following: 802.11x WLAN, GSM-based WWAN, CDMA-based WWAN, Bluetooth or infrared WPAN, and GPS.

A general guideline of user environment specifications for ruggedized devices is as follows (but not limited to):

- **Operating temperature:** -22F to 155F
- **Storage temperature:** -22F to 160F
- **Drops/tumbles to concrete:** 3ft minimum, up to 6ft
- **Environmental sealing:** IP68, IP67, IP66, IP65, or meet MIL-STD-810 specifications
- **Humidity:** 0-95% noncondensing relative humidity
- **Electrostatic discharge (ESD):** ±8kV to ±15kV for air discharge

Related Research

- *Worldwide Business Use Smartphone Forecast, 2023-2027* (IDC #US50483023, March 2023)
- *U.S. Business Use Smartphone Forecast, 2023-2027* (IDC #US50480223, March 2023)
- *Worldwide Business Use Tablet Forecast, 2023-2027* (IDC #US50483923, March 2023)
- *IDC FutureScape: Worldwide Connected Devices 2023 Predictions* (IDC #US49753422, October 2022)
- *2022 U.S. Enterprise Mobility Decision Maker Survey: Devices* (IDC #US49639822, September 2022)

Synopsis

This IDC study represents a vendor assessment of providers offering rugged mobile devices through the IDC MarketScape model. The assessment reviews both quantitative and qualitative characteristics that define current market demands and expected buyer needs for rugged mobile solutions. The evaluation is based on a comprehensive and rigorous framework that assesses each vendor relative to one another, and the framework highlights the key factors that are expected to be the most significant for achieving success in rugged mobility over the short term and the long term.

"Rugged mobile devices are mission-critical business tools in 2023, designed to serve specific enterprise use cases in hazardous frontline working environments where hardware durability and capability is critical," says Bryan Bassett, research manager, Enterprise Mobility, IDC. "Whether it be at a warehouse, storefront, hospital, or home doorstep, chances are most manufactured and shipped goods worldwide have at one point or another crossed paths with a rugged mobile device. With increased mobilization efforts targeted at frontline workers, rugged mobile deployments will see increased demand, as will expanded rugged use cases. Businesses require durable, capable, and purpose-built mobile devices to enable frontline workers in this second wave of digital transformation, and rugged devices will play a crucial role in these efforts."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

140 Kendrick Street
Building B
Needham, MA 02494
USA
508.872.8200
Twitter: @IDC
blogs.idc.com
www.idc.com