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## **TOUGH CHOICE: RUGGED OR CONSUMER?**

What to consider when selecting an enterprise mobile device





As enterprises have gained more options for mobile technology to support their operations, the decision on which devices to use has become more difficult. Enterprises can choose from hundreds of devices with a variety of operating systems, features and price points to support field service, logistics and other mobile enterprise activity. Before diving into device-by-device comparisons, enterprises should consider a fundamental decision: whether to use a consumer-grade or rugged, enterprise-class device.

The consumer vs. rugged argument has gone on for years but hasn't been conclusively resolved for two reasons. First, the line between consumer and rugged devices has blurred. Second, and more importantly, the right choice depends heavily on each organization's specific work processes, usage environment, preferences and budget. The most important considerations include the environments devices will be used in, the processes they will be used for, how long the enterprise wants the devices to remain in service, how much maintenance and downtime are considered acceptable, and how much mobile workers depend on their devices to do their jobs.

This white paper highlights the key differences that emerge between rugged and consumer devices when they are used to support enterprise operations. You can make the right choice by deciding which differences are most important in your work environment.

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# Consider the Work Environment



One of the most important factors in choosing the right enterprise mobile computer is a consideration of both the environment and the workflow for which the device is to be used. A handheld device that will land on a carpeted floor when it is dropped doesn't need to be as rugged as one that will land on concrete. If devices will be used outdoors, the screen should make accommodations so it remains visible in bright sunlight. Environmental resistance and ratings are also important considerations if the devices will be exposed to rain, snow, dust, dirt, chemicals or other hazards in the field. And it is also important to consider both uptime and potential loss of productivity should a device break and need repair service.

Drops are a leading cause of damage to mobile computers, resulting in downtime and lost productivity. When you consider the working environment where the device will be used, you will get a sense of its exposure to risk. For instance, a courier will carry the device for the duration of a shift and the device will be in and out of a vehicle/holster, handed to a customer and exposed to a possible drop on concrete.

To be considered rugged — and therefore reliable — mobile computers must be tested to repeatedly withstand at least 1.5 meter (five-foot) drops to a non-yielding surface.

Enterprise buyers should also be aware that manufacturers may make claims regarding testing and certification that relate to their own standards, rather than an industry standard. Buyers should therefore consider the specification that they want their enterprise device to meet and check to see if the manufacturer's tests cover it.

It's worth noting that just because a device is IP rated, it is not necessarily rugged, but is able to withstand dust, dirt and moisture affecting its operation. If a device isn't rugged,

its IP rating is unlikely to be preserved in the event of a drop. See the Honeywell white paper, [Are Your Smartphones Smart Enough?](#) for clear and detailed guidance on the specific tests, certifications and ratings that are relevant for enterprise work environments.

## **The Case Against Cases**

*Some organizations try to "ruggedize" their smartphones and tablets by using protective cases. Cases provide some protection, but will not bring devices to the level of protection recommended for non-office enterprise operations, where exposure to elements and drops to non-carpeted surfaces are common. Cases can potentially lead to condensation and increased humidity that may fog the device screen and otherwise interfere with its use.*

*While a case provides some external protection, it provides no internal durability to the device. The internal connections and screen housing design within a rugged device accommodates drops — the screen will flex slightly and the connector will hold. Screens are also slightly recessed to provide added protection against cracking.*

*A case can enhance a non-rugged device's durability, but it is no substitute for rugged design. Simply put, a rugged case won't make a device rugged.*

# Consider the Work Process



Consumer devices are designed to give the best possible user experience for staying up to date on social media, listening to music, watching movies and TV shows and playing games, and of course texting and making phone calls. For enterprises, mobile devices are productivity tools. Enterprise devices need to optimize work processes and provide convenient access to business applications. These factors are considered at design stages, meaning that an enterprise device has been designed with business productivity in mind.

## Ease of Use

Ease of use is an important variable for how well a mobile device enhances productivity. Seconds count in high-volume operations. By saving a few seconds recording each transaction, businesses create value by producing significant time and labor savings that lower their overall cost structure. The Delta Global Services experience with handheld computers serves as a good example ([see box on page 5](#)).

Productivity will decrease and costs will go up if the mobile device does not easily support the work process. Consumer smartphones and tablets are not optimized for entering data (via keypad, touchscreen, barcode scanning, imaging or other peripherals). If those activities will be part of your enterprise mobility work process, carefully consider how convenient and ergonomic consumer devices will be for users.

Some purpose-built enterprise computers have keypads and touchscreens that are intended for use by gloved operators to support more convenient and accurate data entry. Making a typo on a text to a friend has different consequences than entering the incorrect digit for quantity or part number on an order form. Screens also need to be readable in direct sunlight, another feature of enterprise-designed devices.

Handstraps on an enterprise device should also be taken into account. They allow a field worker to carry parcels or handle other equipment at the same time as the device and often are accompanied by a stylus for signing on screen by the customer. When coupled with buttons that allow left- or right-handed use, straps can save seconds per transaction or event and so improve productivity.

**Improved Scanning Efficiency  
Reduces Delays, Fines and TCO**

*"If agents don't have confidence in the scanner, they'll find a workaround," said Tom Farmakis, who was Vice President of Marketing & Business Development for Delta Global Services (DGS) when it underwent a major handheld computer upgrade. DGS is responsible for providing gate-to-gate transport assistance to Delta Airlines passengers so they make their flights.*

*When passengers needing assistance arrive at the airport, agents scan the passenger's boarding pass to document the passenger pickup to satisfy FAA compliance requirements. The process previously relied on consumer PDAs, but barcode scanning performance was unreliable and put time-sensitive passenger deliveries at risk.*

*The typical workaround with the previous PDA was to key-enter information from the boarding pass. This manual process produced some data entry errors and did not provide an automatic, indisputable time stamp. Besides losing time, DGS lost valuable documentation whenever the scanning procedure was bypassed because handwritten notes do not always provide the documentation needed to prevent FAA fines.*

*DGS switched to purpose-built enterprise mobile computers with integrated barcode readers.*

*"With the older PDA units, scanning might take you a minute, it might take you two minutes; sometimes it would not even scan," said DGS Memphis General Manager Charlie Kimbell. "With the new [Honeywell] units, within 10 to 15 seconds max, you're on your way with the customer."*

[See the complete case study here.](#)

**Integrated Functionality  
and Peripheral Support**

Rugged mobile computers that are purpose-built for enterprise operations often have built-in support for barcode reading, document scanning, speech input, mobile printer drivers and other functionality. Having these capabilities native to the device helps to future-proof it for multi-use cases.

Peripherals that are designed by enterprise manufacturers take into account the use case of the device and its lifecycle (for

instance, the amount of times a device would be in and out of a vehicle dock in its lifetime). That's not the case with consumer devices, whose manufacturers rely on OEMs to design and manufacture peripherals.

**Barcode Scanning Performance**

Ease of use is an important consideration for mobile device selection, and barcode scanning capability is an important ease-of-use differentiator among devices. Smartphone cameras are capable of reading some barcodes but are not necessarily designed for the task. Not only is scanning speed a feature that should be considered, it's important to recognize the ergonomic design of a device that enables snappy scanning from different angles and devices without causing strain on the wrist, as well as the device's ability to read damaged barcodes.

**Power Management**

Mobile devices designed for productivity have power management advantages that can help ensure that batteries will last the length of the shift. For remote mobile workers, device uptime is crucial because dead batteries could represent a lost day of work. Enterprise devices have more powerful batteries, which extends the working day of a device before it will need to be recharged.

Availability of a spare battery is not something that you will necessarily see in a consumer device, where quite often the battery is integral (non-removable) to the device, which means you need to charge the whole device rather than a simple battery swap out. In the case of devices where the battery is integral to the device, you would need to consider if battery replacement is possible or if the whole device would need to be replaced. In either case, downtime and cost for repair and/or replacement should be factored in.



# Consider the Productivity vs. Failure Effect



Workforce mobility provides value by saving time, preventing errors and improving the user and customer experience. Mobile devices that support and enhance these benefits provide value; devices that detract from mobile worker productivity because they break frequently, are not ergonomic, run slowly or wear out reduce the value of enterprise mobility programs. That hasn't changed and never will, no matter how mobile device technology changes.

"Productivity factor" isn't listed as a line on a spec sheet and isn't always easy to understand, but enterprises need to take steps to quantify it. How a device influences productivity is more important than how big it is, how much it costs or what operating system it runs.

To understand the value of productivity, consider what would happen if a device failure delayed deliveries or caused missed appointments. Those disruptions would have an unknown cost to brand reputation, and would have measurable costs for overtime to make up for lost productivity, lost revenue opportunities in field sales and service operations, and discounts, credits and other make-goods that may be offered to customers that were inconvenienced by the delay. The biggest influence on worker productivity is device reliability, so it is important to consider the ruggedness and use-case factors presented earlier.

## **Failure has hidden costs**

*Consider a delivery driver out on his route making stops, then his device fails at around 11 a.m. – what does he do? Does he return to the depot for a replacement device, if any are available? Does he revert to paper?*

*To return to the depot would cost time and possible late or failed deliveries and result in a poor customer experience.*

*If he reverts to paper, each delivery will take longer, is open to error and will take more time for re-keying when he returns to the depot.*

*When devices fail in the field, workers have several options, but none are good, and all will result in inefficiency and reduced customer service. The key points to consider are the cost in time, resources and customer service. Imagine this cost extrapolated across a company's entire device population and you can start to see the long-term benefits of a rugged device.*

## Product Lifecycle

Product lifecycle is the key differentiator between consumer smartphones and rugged mobile computers. Consumer devices have a much shorter timespan before they are superseded by a brand-new model, whereas enterprise devices are designed to provide many years of service.

Some organizations choose consumer devices for deployments over rugged, knowing that they will need to replace the devices in a shorter timeframe. While this strategy eliminates the surprise of replacement costs, you would need to forecast device cost over a certain time period to ensure that it's a cost-competitive option vs. a rugged model. It's also worth noting that once a device reaches end of life (EOL), so will the spares and accessories available for it.

Enterprise devices, while providing a much longer lifespan, will also have replacements, spares and repairs factored into the design process, which helps ensure that the devices provide the maximum length of service before replacement.

## Spares, Repairs and Support

Every time devices need to be replaced due to breakage or failure, organizations incur costs and delays related to device configuration and deployment, in addition to the direct cost of purchasing the new device.

The higher the failure rate for a category of devices, the larger spare pool the organization should keep on hand to mitigate lost productivity when devices fail. Adding to the spare pool adds to the overall acquisition cost, but not the per-unit acquisition cost, and thus may be overlooked in some cost comparisons.

It is important to note that rugged enterprise devices are designed to be repairable and manufacturers typically have mature service programs and infrastructures that can contractually commit the manufacturer to quickly providing replacement devices and completing repairs in a timeframe that is acceptable to the organization.

### **Frequent failures lead to switch from consumer devices**

*The inconvenience and cost of having to frequently repair its consumer-grade PDAs led Bon Appetit Bakery, a baked goods wholesaler that delivers to convenience stores and other retail outlets, to switch to more rugged enterprise handheld computers.*

*"Our distributors are rough, and we were replacing between 15 and 20 of our old PDAs each week. Even though we had them under warranty, we were still constantly on the phone working to get them replaced. On top of that, the repair or replacement took a two-week turnaround," said Marc Sy, IT Manager at Bon Appetit Bakery at the time of the upgrade.*

*"We've seen a lot of time savings, reduced user error and we now spend much less time on the back and forth involved in product replacement and repair. The new technology has really just made life a lot easier. Drivers can now get in and out of the stores much faster and in a more efficient way."*

[Download the complete case study here.](#)



## Conclusion

As mobile computers have evolved and become commonly used in business, some of the once-clear differences between what is a consumer device and what is an enterprise mobile computer have disappeared. That has made choosing between enterprise and consumer devices more challenging. Making the right choice requires developing an understanding of the usage environment and work processes, and how various device features and functions contribute to productivity and reliability. Specialized mobile work processes usually require specialized devices that are designed for the task. Understanding which specialized features and environmental protections are needed is key to making the right device choice.

Because productivity is so important, rugged enterprise mobile computers tend to have a total cost of ownership (TCO) advantage over consumer models in challenging work environments where devices are exposed to drops to hard surfaces, weather, spills and other potential causes of damage. Consumer devices tend to cost less than rugged enterprise models to purchase, and tend to last less time in enterprise environments; rugged devices cost more to purchase but tend to cost less over the entire lifecycle if downtime, maintenance and replacement costs are considered.

# About Honeywell

Honeywell Safety and Productivity Solutions (HS&PS) offers a full range of mobile computers, smartphones and accessories with different ruggedness levels, features and configuration options so enterprises don't need to compromise to get a mobile device that meets their specific needs.

Honeywell Safety and Productivity Solutions is a leading manufacturer of high-performance image- and laser-based data collection hardware, including rugged mobile computers and barcode scanners, radio frequency identification solutions, voice-enabled workflow and printing solutions. With the broadest product portfolio in the automatic identification and data collection industry, HS&PS provides data collection solutions for retail, healthcare, distribution centers, direct store delivery, field service, manufacturing and transportation and logistics companies seeking to improve operations and enhance customer service. Additionally, HS&PS provides advanced software, service and professional solutions that help customers better manage data and assets. HS&PS products are sold worldwide through a network of distributor and reseller partners. For more information on Honeywell Safety and Productivity Solutions, please visit [www.honeywellaidc.com](http://www.honeywellaidc.com).

Honeywell ([www.honeywell.com](http://www.honeywell.com)) is a Fortune 100 diversified technology and manufacturing leader, serving customers worldwide with aerospace products and services; control technologies for buildings, homes and industry; turbochargers; and performance materials. For more news and information on Honeywell, please visit [www.honeywellnow.com](http://www.honeywellnow.com).

## Additional Resources

Honeywell has several other application briefs and white papers that relate to TCO and other mobile computer selection criteria:

- [Things to Consider When Using Smartphones For Data Capture](#)
- [Are Your Smartphones Smart Enough?](#)
- [Strategic Insights into Selecting the Operating System that Best Meets Your Long-Term Business Vision](#)
- [Top 5 Tips for Choosing Mobile Computers](#)
- [Mobile Device Convergence in Healthcare](#)
- [Five Things to Consider When Using Tablet Computers in Forklift Applications](#)
- [Considering the Advantages of Voice for Your Forklift Fleet?](#)

### For more information

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