Mobile Computing 101:

The Parts of a Perfect Mobile Deployment

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Enterprises have adopted mobile computing as the new normal. Equipped with mobile devices, employees aren't tethered to a desk or workstation. They have the ability to enter data, access information, collaborate with colleagues, and provide personalized service to customers, wherever and whenever it's needed most.

With the pervasive use of mobile consumer devices, mobile computing in the enterprise also provides new employees with technology tools that are familiar to them. *PwC's Millennials at work: Reshaping the workplace* report states 59% of workers in their 20s and 30s say technology in an important consideration when looking for a job. Moreover, about 75% say they are more effective when they have access to technology that they enjoy using.

Mobile computing's potential to improve operational efficiency, customer service, and user experience continues to drive its adoption. In fact, IDC predicts that by 2020 mobile workers will make up three-quarters of the U.S. workforce.

If your organization is ready to be a part of the mobile revolution, this guide will provide you with a quick primer on the basics of a mobile deployment as well as guidance on making the best choices for your specific application.

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The Elements of a Mobile Deployment

The perfect mobile solution includes several elements, strategically chosen for your application, your expected outcomes, and your workforce: **a mobile device, mobile device management, operating system, software applications, and a network.**

The Mobile Device

Mobile Device Form Factors

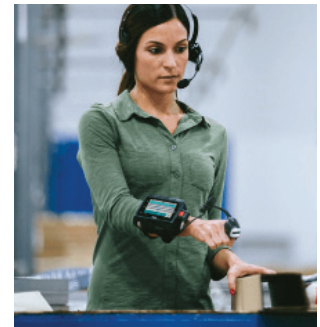There are a wide variety of mobile device form factors, available from Zebra Technologies:

Tablet	**Mobile Computer / Handheld**	**Vehicle Mounted Computer**	**Wearables**
	Smartphone style, pistol grip, brick, key-padded, and touchscreen		Worn on wrist or at the waist, ring scanners, and headsets

The type of mobile device you choose will have a direct impact on employee productivity. For example, if much of a worker's shift involves data collection via barcode scanning, a pistol grip mobile computer may be a better choice than a tablet. If an employee is scanning while handling packages, however, a wearable computer may be a better option.

Although increased productivity is an important goal, there are also other reasons to carefully match the type of device to the application. The device choice can affect worker safety, especially if your employees need to stay heads up and hands free. Devices also need to be ergonomic to minimize the chance of fatigue or injury when using them. Selecting the right device can also lead to greater ROI by maximizing opportunities for increased productivity, efficiency and accuracy.

Rugged Design

Mobile computers are used in all types of rugged environments: busy manufacturing and warehouse facilities, outdoors on field worker routes, and in and out of cold storage. They can be mounted to the dashboard of a truck or inside a forklift or used near a wash down station, a dust collector, or a chemical process. Zebra industrial mobile computers are purpose built to keep working in harsh conditions.

As you evaluate mobile device options, ask the manufacturer for data on how the device was rated after drop and tumble tests. Also investigate the device's IP rating, which tells how well the design prevents damage from dust (first digit) or water (second digit) infiltration. An IP 64 rating, for example, means the device is completely protected from dust ingress and from water spray in any direction.

The research you do into the ruggedness and durability of mobile devices can have significant return. VDC Research Group studied the performance of rugged devices in enterprise settings compared to consumer-grade devices and found the failure rates for rugged vs. consumer is 7% to 23%, with most failures caused by dropped devices. Damage leads to repair or replacement costs, but it also leads to downtime—VDC found 180 to 260 minutes per mobile worker—and a demand for IT labor. As a result, rugged devices, although they may cost more initially, have a lower total cost of ownership (TCO) than devices that were not designed for industrial applications.

Enterprise-Grade Features

Enterprise-grade mobile devices are designed to do more than keep performing in harsh environments. An investment in enterprise-grade mobile devices also equips your organization with these enterprise-grade features:

Scanning
Enterprise mobile devices are available with 2D imagers that enable omnidirectional scanning, scanning barcodes under shrink wrap, decoding damaged barcodes, and reading digital barcodes on device screens.

Battery Power
In some applications, it may not affect productivity if an employee has to return a device to a charging cradle. For others, however, such as field workers or employees who use a device throughout an entire shift, the battery has to last. Insufficient battery power may mean you need to purchase additional batteries—or even additional devices—to ensure workforce productivity. The smart investment is in an enterprise-grade device with high-capacity batteries that can be changed, when needed, without powering down.

Support Services
When evaluating mobile devices, look beyond device specs themselves to the support the manufacturer is offering. Will your support requests be a priority when devices need repair? Enterprise device manufacturers offer support plans that will guarantee a service level and configure the device so it's ready for use as soon as you receive it.

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Mobile Device Management

Managing your mobile deployment is a key to maximizing the value it provides to your enterprise. State-of-the-art mobile device management (MDM) solutions empower you to manage devices, applications and content from a single location. MDM enables you easily onboard new devices and users and to schedule device updates for times that are least disruptive. Many updates and maintenance tasks can be handled remotely, eliminating the need for downtime when employees bring devices in for service. The ability to manage devices from a central location minimizes downtime and maintains productivity. It also saves support costs—as much as 85%, according to VDC.

MDM solutions also provide you with security features that keep devices and your network protected from new cyber threats. Look for MDM with advanced security features such as device authentication and data encryption, as well as access control functionality, such as the ability to remotely lock or wipe devices if lost or stolen.

The Operating System

As Microsoft ends support for Windows Mobile versions in 2020, many enterprises are faced with the question of which mobile operating system (OS) to use. Continuing to use Windows version beyond the end of support is not a wise decision. After the end of support date, the OS will no longer receive updates or security patches, which puts your data and network security at risk.

With the need to choose a new operating system, many organizations are looking beyond Windows to Android OS. Android is an open architecture OS, which allows for innovative applications and more agility when your system requires new features. Android is currently the most popular OS worldwide for consumer devices, so your workforce most likely has familiarity with its intuitive interface. Android security has been in question because of its open platform, but there are extensions, such as Zebra Mobility Extensions (Mx) or LifeGuard for Android, which add security features to Android and making it secure for enterprise use.

Transitioning from one OS to another can cause disruption for an organization, but solutions are available that help make the transition more smooth and user friendly. There are also mobile devices that can run either OS, which can make the transition easier and less disruptive.

Software Applications

A mobile deployment requires applications to provide the functionality your workforce needs. For example:

Terminal Emulation
Many businesses are upgrading from legacy "green screens" to more intuitive interfaces, similar to those on consumer devices. According to Zebra Technologies, modern interfaces take less time to learn, are adopted more quickly and result in a 15% increase in productivity.

Signature Capture
With signature capture capabilities, field workers can transmit and update records immediately, eliminating the chance that paper records could be lost or misplaced. Signature capture is also a convenient feature for clients, who can receive their copy of records electronically.

Voice Capabilities
Voice direction can increase efficiency of tasks such as warehouse picking, but without a voice application, the worker may require an additional device to enable it. Choose an application that enables voice direction, as well as features such as push to talk, which can unify communications in one device.

The Network

The right mobile device and the best applications will be of little use if your mobile workforce can't connect to the network. Work with an experienced and qualified provider to install and optimize your network, and ensure security and management features are included in the design.

Also ensure the devices you choose can connect with the network in multiple ways to minimize downtime or to enable connections when workers are in the field. Enterprise devices will offer features such as support for 802.11a, which helps with Wi-Fi network capacity, provides more channels and bandwidth and minimizes interference, and 5 GHz Wi-Fi, which requires fewer access points, reducing time to manage your WLAN.

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The Benefits of the Perfect Mobility Deployment

A carefully designed mobile computing solution will provide significant ROI for your enterprise:

Greater Efficiency and Productivity
With the right mobile computing solution, your employees will be able to do their jobs more quickly and easily, resulting in greater throughput in a shift.

Accuracy
Without the need for paper-based records or manually keying in data at a workstation, accuracy will improve and you will gain real-time visibility into operations.

Improved Workflows
Streamlined processes made possible by mobile computing solutions will mean better customer service, with fewer delays and errors.

Reduced Training Time
You will spend less time training new employees with devices with intuitive user interfaces, and less time training overall with enterprise-grade devices with longer support lifecycles.

Is your business getting all the advantages of a mobility solution perfectly tailored to the unique needs of your business? **Contact Barcodes to learn more.**

About Barcodes

Barcodes is an industry-leading integrator of business solutions across barcoding, card, and GPS applications. From device configuration to network provisioning, equipment staging, kit delivery, solution implementation, and ongoing support, we make sure the solution addresses your business' unique needs.

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About Zebra Technologies

Zebra builds tracking technology and solutions that generate actionable information and insight, giving companies unprecedented visibility into their businesses by giving physical things a digital voice.

Zebra's extensive portfolio of solutions give real-time visibility into everything from products and physical assets to people, providing very precise operational data not only about where things are, but what condition they are in. This allows business leaders to use data to make better, more informed decisions, respond in real-time and ultimately, help businesses understand how they work, and how they could work better.