



The competitive advantages of the Motorola ES400



The challenge: empowering mobile managers and task workers with the right mobile device

Many of today's mobile workers carry smartphones — part cell phone and part Personal Digital Assistant (PDA). This convenient pocketable form factor offers a connection to some of the tools and information required to boost mobile worker productivity. These devices are designed primarily for the consumer market, and often typically lack important business functionality — unable to access business critical vertical applications or provide the advanced data capture capabilities required to automate paper-based and other business processes.

Consequently, businesses seeking to streamline and enable real-time processes in the field often need to provide mobile workers with a second device, increasing costs for the enterprise and adding complexity to the lives of on-the-go workers. In addition, the consumer-style devices present other issues when deployed in business settings, from durability to lifecycle, management and support. The life expectancy of a consumer style smartphone is at best 12 to 18 months. Since models are often updated every six months with no end-of-life warning, enterprises end up with many different devices deployed at any given time, complicating management for IT and users — and further increasing costs. In addition, this mobile device pool is difficult to manage — the tools utilized to manage other enterprise-class devices are typically not available, nor are service programs designed to provide the immediate support that your business users need.

As a result, consumer style devices ultimately drive the cost of mobility up. Capital costs are high — lack of durability leads to the frequent replacement of devices and their proprietary accessories. Operational costs are also increased. Buyers must spend additional time purchasing devices, accessories and data plans. And IT faces the many challenges associated with troubleshooting and deploying applications on a product pool that is not only diverse, but also always changing.

The answer: the Motorola ES400 — a compact and durable enterprise-class mobile computer offering robust voice and data

The Motorola ES400 Enterprise Digital Assistant (EDA) is the same size and weight as the average consumer device — yet offers so much more. This true pocket-size office offers real enterprise-class functionality — all the tools required to maximize worker productivity and operational efficiency — as well as enterprise-class durability, security, manageability and support.

Instead of providing your users with either one device that will simply keep them informed or multiple devices to get the job done, you can empower your users with a single device that offers the comprehensive business tools required to turn 'action item' into 'action taken'.

Packed with voice and data capabilities, the ES400:

- Interfaces with back-end business applications
- Offers user selectable WAN that connects to almost any cellular network in the world
- Offers a unique, enterprise-driven, custom user interface that provides business users with highly intuitive and rapid access to device features and applications
- Provides real-time access to personal productivity business applications, such as calendars, corporate contact lists and corporate email — including the ability to open and edit standard business documents created with Microsoft Office
- Enables users to capture 1D and 2D bar codes*, signatures, documents, videos and richly annotated photographs

* The 3.2 MP camera is intended for occasional bar code scanning, defined as fewer than 200 bar codes throughout the workday (not designed for scan intensive applications).

Competitive differentiators

Whether you are comparing the ES400 to a consumer-style device or to other EDAs, you will discover seven different categories of competitive differentiators: device design — from the internal components to the display and keyboard, usability, durability, manageability, serviceability, security and total cost of ownership (TCO).

Device design — inside and outside

The ES400 proves that looks can be deceiving. This compact mobile computer offers many differentiators, from the physical design of the device itself to the technology inside.

Advanced ergonomics

Motorola's Industrial Design team conducted multiple human factor studies to ensure ease-of-use for the complex feature set that is packed into this small form factor.

The keypad

Enterprise workers require a keypad to enter the volume of data collected throughout the business day. Design objectives for the ES400 keypad included providing the easiest possible data entry for workers of any age and hand size, for both one and two-handed operation.

Heuristic analyses enabled the development of a superior keying experience that maximizes data entry speed, accuracy, ease and intuitiveness — and the test was benchmarked against major consumer devices. Design factors included:

- **Key size:** A 'no-bezel' design enabled the widest possible keypad design, allowing the largest possible keys for the device size.
- **Key shape/surface contouring:** Each key is shaped appropriately for its place in the keypad. A pillow-style topology provides a 'peak point' on each key for a high quality tactile keying experience.

Figure 1: A keypad and display for easier-than-ever data entry and viewing



ES400 Display Differentiators

- **PenTile display:** Delivers twice the brightness at half the power. Special algorithms sharpen edges and fonts, making text, icons and menus crisper and easier to read — indoors and outdoors.
- **Full screen utilization:** Unlike other devices with the same size or larger screens, 100 percent of the 3 inch screen is available for application display — from edge to edge, top to bottom.

ES400 Keypad Differentiators

- **Key size:** Elimination of the bezel around the keypad enables widest possible keys for device size
- **Pillow-top contour:** In combination with a 'peak point' on each key, keys are uniquely shaped for their position in the keypad.
- **Key placement:** All keys placed to minimize 'travel' and provide an intuitive keying experience.

Integrated light sensor: The display senses the available light and automatically and smoothly adjusts backlighting without user intervention, delivering power savings as well as a consistent viewing experience — even as users move from inside a building or car out into direct sunlight.

- **Special keys:** Function, tab and other keys were added to increase ease of use.
- **Activation force:** Balanced activation force is light enough to ensure easy data entry, yet easily prevent accidental key activation.
- **Optical navigation pad:** Selected for its size and flexibility, this navigation mechanism can be utilized in a mouse mode for easy web browsing or for '4-way' navigation (up, down, right and left), allowing users to easily move through email or fields on a form.

- Color schemes: The colors utilized in the keypad factor in the diversity of the workforce, including workers who are colorblind.
- Key placement: Function and special keys were placed to minimize travel and provide an intuitive keying experience. In addition, keys that are uncommon in a primary telephony keypad but commonly used for data entry, such as a 'Tab' key, were added.
- Keypad activation force: The balanced activation force is light enough to ensure easy data entry, yet prevents accidental activation of a key.
- Navigation mechanism: The optical navigation pad was selected for its size and flexibility. It takes up very little real estate and can be utilized in either 'mouse' mode to easily navigate through a website, or placed in '4-way' mode to allow users to easily toggle through fields on a form — up, down, right or left.

The display

The ES400 offers an enhanced display experience for a device in this class, optimized for enterprise application use:

- Only device in this category with a PenTile® display: Small screens are often hard to read. But the leading edge PenTile® display technology typically delivers approximately twice the brightness at just half the power of standard displays. The addition of a white pixel produces brighter whites and darker blacks, while specialized algorithms sharpen edges and fonts, making text, icons and menus are crisper and easy to read in virtually any lighting condition. The result is excellent readability indoors and outdoors — without compromising battery power.
- Use of the entire screen — edge to edge: The ES400 offers a 3-inch color touchscreen display — one of the largest screens in this device category. And unlike other devices, the entire screen from edge to edge is utilized for application display.
- Integrated light sensor: The display senses the available light and automatically and smoothly adjusts backlighting, delivering a consistent viewing experience while conserving battery power.

Real-time interaction with enterprise applications

At the heart of the ES400 is Microsoft's Windows Mobile 6.5.3 operating system (OS). This industry standard OS facilitates easy integration with your back-end business applications as well as an extensive library of 'off-the-shelf' applications, allowing enterprises to extend real-time application access to mobile workers.

In addition, the ES400 has what it takes to run simultaneous applications, including:

- The Samsung ARM 11, 600 MHz processor: This processor offers rich memory support as well as an integrated 3D hardware accelerator capable of handling most graphics intensive applications — including real-time video and navigation applications.
- The largest total memory footprint in this device class: The ES400 offers 256MB RAM/ 1GB Flash plus up to 32GB of extra storage via the user accessible microSD slot.

Integrated camera with enterprise data capture advantages

The integrated 3.2 MP autofocus color digital camera enables the easy capture of a wide range of information, including 1D and 2D bar codes, signatures, photos, high quality videos and documents. In addition, the ES400 is the only one to offer:

- Illumination designed for bar code capture: A user controllable light source is designed specifically to ensure proper lighting of bar codes for dependable, accurate, bar code capture.
- Advanced decode software: Motorola's advanced decoding algorithms provide best-in-class scanning, including the ability to capture dirty or damaged 1D or 2D bar codes.
- Emulated LED aimer: Ensures accurate aiming for easy bar code capture
- Native document capture: The ability to capture documents can streamline many business processes and enable electronic recordkeeping.

Network agnostic user-switchable WWAN connections

The ES400 is the only device in this class to offer dual user-switchable 3.5G WWAN connections, enabling:

- Activation on both the 3.5G broadband GSM HSPA or CDMA EVDO Rev A networks
- Deployment and re-deployment on almost any cellular network in the world
- Users to easily switch between networks (on devices with active plans on both GSM and CDMA cellular networks).

Benefits include:

- Maximum device utilization, lifecycle and return on asset (ROA)
- Ability to provide multiple WWAN connections for international travelers or workers who routinely travel through a territory with areas that are better covered by different carriers — protecting worker productivity, response times and customer service levels

- Ability to better negotiate best pricing plans with carriers
- Ability to standardize on one device for all workers, regardless of location, minimizing purchasing and IT administration time and cost

Cost-effective in-building Wireless LAN (WLAN) support

The ES400 is the only device in its class to offer 802.11a/b/g support, enabling users to utilize the WLAN for voice and data connectivity when they are at the office, at home or in hot spots. Benefits include:

- Elimination of the typical in-building coverage issues common with cellular service
- Easy integration with virtually any WLAN, reducing deployment costs
- Superior voice connection quality due to the ability to isolate voice traffic on 802.11a

Software-based dual WWAN connections: easy to set up and easy to manage

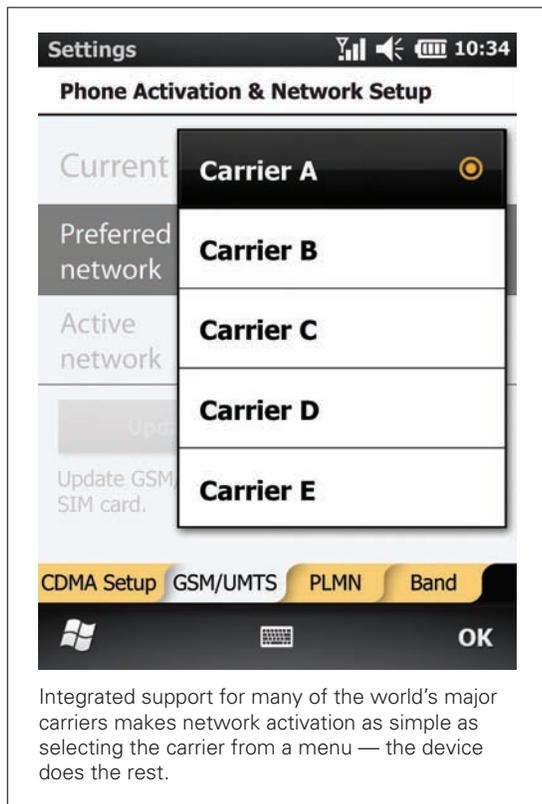


Figure 2

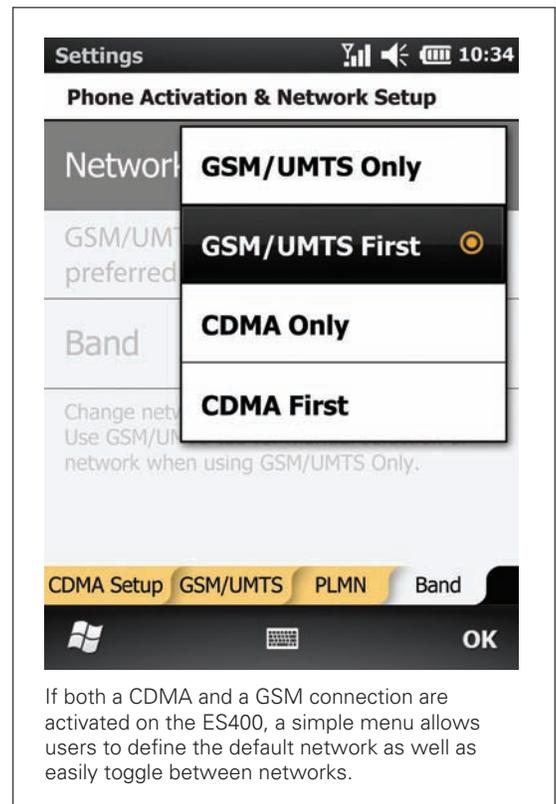


Figure 3

Advanced voice capabilities

Many mobile computers are built primarily for data and secondarily for voice, but the ES400 is designed from the ground up to deliver equally superior voice and data functionality:

- **Extraordinary voice clarity.** Dual microphones combine with leading-edge noise reduction and echo cancellation to virtually eliminate distracting background noise, ensuring call quality and voice recognition application performance — even in the noisiest environments.
- **TEAM Express ready.** The future proof ES400 is TEAM Express ready, able to connect to different devices on different networks when the Motorola TEAM Express ES400 client is released. This capability will allow push-to-talk (PTT) communications between other Motorola mobile computers and two-way radios. Enterprises can select the right device for each workgroup, yet easily enable cross-communications between all devices.

Usability: the Motorola Enterprise User Interface (MEUI) — built for business

The ES400 is the only device in its class to offer a custom and customizable enterprise class interface that allows business users to more easily access applications and the many features resident on the device. The elegant interface is intuitive, allowing your mobile workers to stay focused on their job — instead of on how to use the device. The Motorola Enterprise User Interface (MEUI) offers:

Easier device management

- **Device Management Tabs:** Instead of drilling down through multiple menus and screens, settings are logically grouped into individual Device Management Tabs that are always available — such as Memory, Power/Radio and Audio. A single touch of a tab provides access to all related settings.
- **Flexible setting profiles:** Users can either adjust individual settings on the fly or create powerful custom profiles that can be activated either

Figure 4: Device Management Tabs

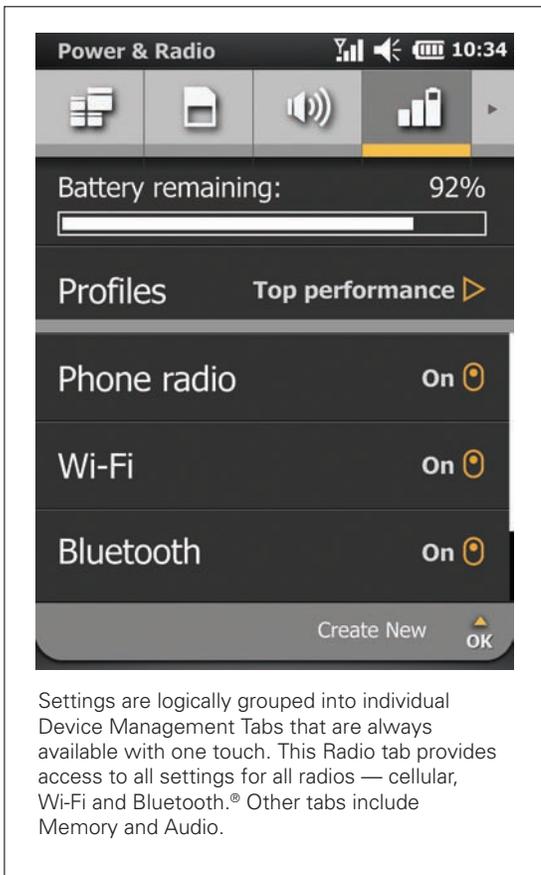
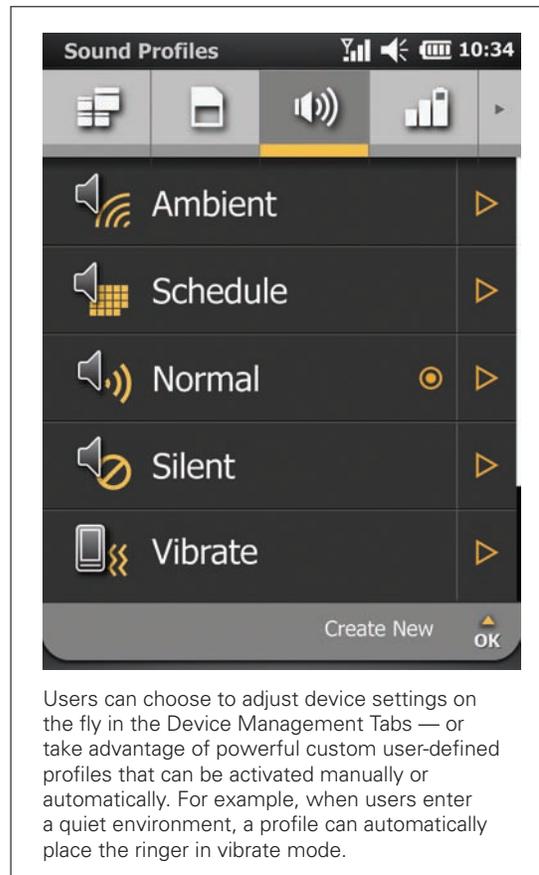


Figure 5: Flexible setting profiles



manually or automatically. For example, when the ES400 detects a quiet environment, a profile can automatically place the ringer in vibrate mode. Conversely, when the device detects a noisy environment, ringer volume can be automatically increased to prevent workers from missing an urgent call.

A better phone experience

Unlike most other devices, the ES400 provides everything users need to manage calls on a single screen including a large 'touch friendly' dial pad; access to speaker, mute and hold; and one touch access to country calling codes. This screen is displayed for the duration of any call, allowing users to easily enter additional numeric information as needed — for example, conference call passwords. And a toggle button provides one-touch access to a multi-caller conference management screen that allows users to easily add, drop or speak privately to one or more callers.

Better application management

Applications are easily accessible, right from the Home Screen:

- **Running applications:** One tap in the top bar displays a list of all open applications, allowing users to switch applications with a single tap.
- **Top four most used applications:** A user-customizable program dock provides one-touch access to the top four applications — and users can change the applications or functions highlighted on the dock at any time.
- **'My Apps' Menu:** A quick tap on the 'My Apps' button presents a user-customizable menu of applications, ensuring instant access to an unlimited number of applications.

Better media management

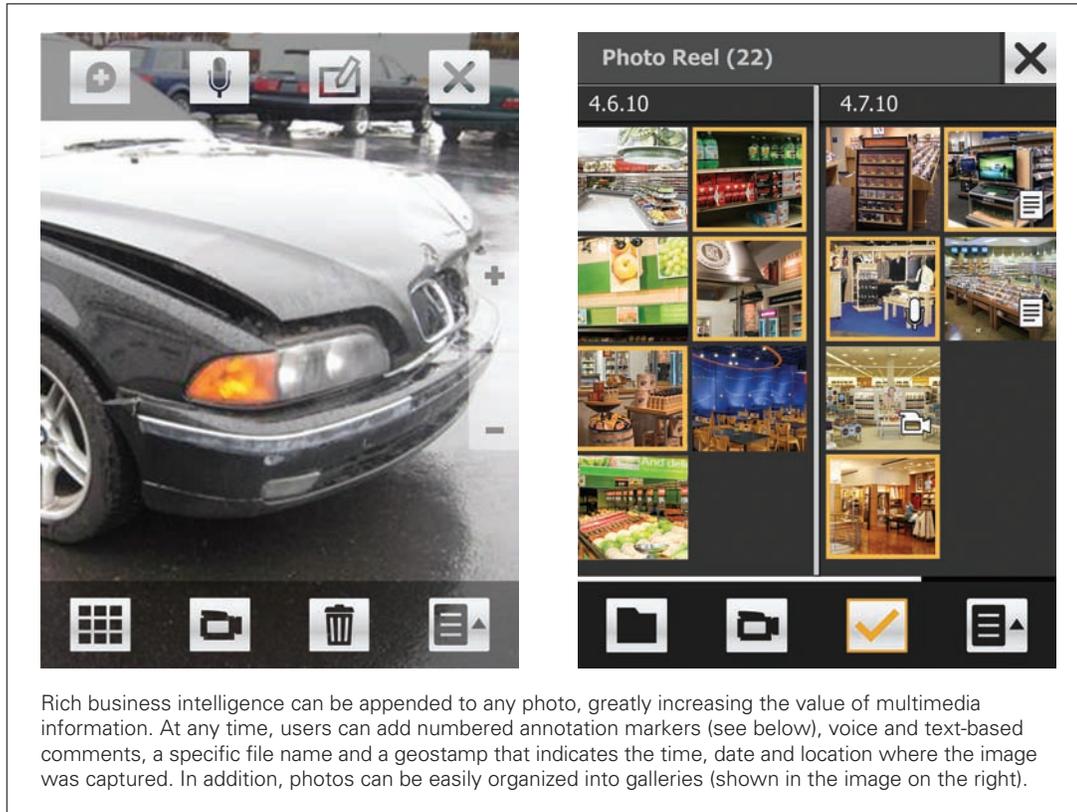
Two unique features allow enterprises to maximize the value of multimedia information:

- Rich business intelligence can be appended to photos, including: voice and text comments; numbered annotation markers that can be placed on photos to enable detailed references; a file name; and a geostamp that indicates time, date and location where the photograph was taken.

Figure 6: Fast and easy application access



Figure 7: Boost the value of imagery with rich multimedia management



- Workflows can be customized to best suit the job at hand — photos can be viewed and information entered as each image is captured, or at a later date. The ability to create galleries allows users to organize photos properly, right on the spot — and even append a comment to the entire group (for example, a store location).

Better management of personal information

The custom Home Screen keeps all personal communications and business information in sight to help users stay on top of their business day. The Summary Home Screen displays the number of new voicemails, missed calls, emails and text messages that have been received, along with the next appointment time and the number of open tasks — no scrolling required. One touch allows workers to access, review and if appropriate, respond to items in any given information category.

Durability

The ES400 offers something most consumer-style devices do not — durable construction. In addition, the ES400 is the only device in its category to offer five separate durability ratings that help ensure reliable operation despite all day everyday use:

- The applicable MIL-STD 810G drop specification that enables the device to withstand the impact of a 4 ft./1.22 m drop
- The IEC tumble specification that ensures the device can withstand 300 consecutive 1.6 ft./0.5 m hits
- Meets MIL-STD 810G rain standards and exceeds IP42 sealing specifications, enabling the ES400 to endure exposure to rain, moisture and dust
- Thermal shock rating for -20° F to 158° F / -20° C to 70° C, able to withstand rapid movement between extremely cold and extremely hot environments
- MIL-STG 810G specification for vibration

Manageability

Compatibility with Motorola's optional Mobility Services Platform (MSP) provides extraordinary centralized control over all your ES400 devices, regardless of where in the world they are located. The ability to remotely stage, provision, monitor and troubleshoot devices dramatically reduces one of the largest costs associated with mobility — ongoing day-to-day management.

Serviceability

A business-class device requires business-class support. To keep ES400 devices up and running, Motorola offers two robust support services that provide a level of expertise that can only come from the device manufacturer:

- **Motorola's Managed Device Service.** This service allows enterprises to delegate day-to-day device management to Motorola experts, freeing your IT to focus on more critical business initiatives. Our multilingual help desk provides a first point of contact for your users, and is manned by technicians who can take remote control of the ES400 to identify and resolve issues with minimal user involvement. In addition, Motorola proactively monitors your ES400 devices to identify and correct device issues before users are impacted. Other services include execution of software updates, real-time asset tracking and locking or wiping of lost or stolen devices.
- **Motorola's Service from the Start with Comprehensive Coverage.** This unique all-inclusive service covers normal wear and tear, internal and external components damaged through accidental breakage, and even select accessories that ship together with the ES400, minimizing and providing predictable device support costs.

Security

A comprehensive suite of solutions addresses one of the biggest mobility concerns — security. Motorola's security solutions allow enterprises to deploy the right level of security for different types of users and applications, protecting the ES400, the data on the device, the information in transit to and from the ES400 and all the network resources that can be reached through the ES400. In addition, the ability to layer security as required for different user groups enables enterprises in certain industries to achieve compliance with government regulations, such as PCI in retail or HIPAA in healthcare.

Security features include:

- **Integrated biometric fingerprint reader.** The ES400 offers a built-in biometric fingerprint reader that requires users to swipe a finger to unlock the device. A simple application included with the device enables users to easily register their fingerprints. In addition, businesses can increase security by also requiring users to enter a password to access the device.

- **Mobile Virtual Private Networks (MVPNs).** Motorola's available tested and validated Mobile Virtual Private Networks (MVPNs) bring wired-line security to wireless communications, without the typical performance degradation associated with wired Virtual Private Networks (VPNs).
- **Motorola's Mobile Security Platform.** This suite of tools provides a wide variety of device-level security features, including: FIPS 140-2 AES encryption for data stored on the device; remote locking and wiping of lost or stolen devices; a device firewall; intrusion prevention; enforced authentication; and integrity monitoring.

TCO (Total cost of Ownership)

A number of factors allow the ES400 to provide a much lower TCO than consumer-style devices, including:

- **A three year availability cycle.** Where consumer-style devices frequently complete their lifecycle in nine to twelve months, the ES400 will be available for a minimum of three years. The ability to standardize on a single device eliminates the high cost associated with purchasing, deploying and supporting the many different models often in use in the enterprise at any one time.
- **The ability to change cellular networks as required.** The network agnostic ES400 can be deployed or re-deployed on virtually any cellular network, anywhere in the world, at any time, further protecting lifecycle.
- **Centralized and remote management.** Compatibility with Motorola's Mobility Services Platform (MSP), an optional device management solution, allows IT to easily monitor and manage all ES400 devices all over the world from a central location. The result is the substantial reduction of one of the largest mobility costs — everyday management.
- **World-class service and support.** Two available services help maximize device uptime and minimize support costs. Service from the Start with Comprehensive Coverage covers virtually anything that might happen to the device, including accidental damage, normal wear and tear and even select accessories that ship with the ES400. And our Managed Device Service simplifies day-to-day support through proactive device monitoring and a multi-lingual help desk manned with technicians who can remotely diagnose and resolve device issues — helping you keep the ES400 in the hands of your mobile users.

For more information

The ES400 can transform your enterprise by empowering your mobile workers to take action, right on sight with your customers. To find out how you can leverage the ES400 to improve productivity, response times and customer service in your organization, please visit us on the web at www.motorola.com/ES400 or access our global contact directory at motorola.com/enterprisemobility/contactus



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