



# Data at Your Finger tips



**M**ore and more companies are using handheld devices to streamline their enterprisewide business processes and improve the accuracy and availability of mission-critical information. As personal handheld devices (aka personal digital assistants, or PDAs) have improved the quality of life for many professionals, the connected or wireless handheld device can and will improve the quality of data capture and management practices within environmental, health, and safety management information systems (EMISs). Because EH&S managers and site employees must travel throughout the facility to capture various pieces of environmental data, they still largely depend on paper, pen, and clipboard for data capture. With the emergence of advanced handheld technology, industry professionals are now considering mobilizing enterprise applications to make a broad range of tasks faster, more efficient, and ultimately less costly.

EH&S managers thinking about integrating handheld applications into their EMISs must consider much more than the obvious factors. The process appears simple: Just add a few more applications to the current system, choose a fancy handheld device, and...voilà...you're mobile! In reality, it's not that easy. To start with, you must weigh the importance of applications and technical overhead above the device itself. To the dismay of IT departments, decision-makers are often heavily influenced by marketing schemes devised by handheld manufacturers and forget how and why the system

is being created. This can lead to major problems and, ultimately, may make a data management system more unwieldy than it was before the process started. Once the "how and why" have been determined, managers are ready to face the technical challenges that accompany the deployment of handheld technology in an EMIS.

## DATA SYNCHRONIZATION

The key goals to consider when choosing a handheld device include the reduction or elimination of duplicate data entry, real-time data capture, and improved accuracy. With these goals in mind, you must consider the importance of synchronizing handheld devices with the primary database, and choose a technology that best meets the needs of your organization. Because critical business information will be stored on a local device, there is a need to synchronize changes and updates in a timely fashion.

One option is to synchronize a handheld device to enterprise systems via a cradle device. Because most PDAs use a cradle device for synchronization, this option is probably most familiar to end users. With this method, operators fill out job-specific forms using the device and download the information using the cradle, which is connected to a PC on the network. One disadvantage to using the cradle method is that the database is not updated in real time. Hours could elapse between downloads and, therefore, critical data could be

misrepresented. The cradle option also leaves room for human error. For example, if an operator forgets to download the handheld, information would be missing from the database, which could ultimately compromise the accuracy of reports.

A pure wireless synchronization solution involves leveraging similar technology to that used by cell phones and pagers. Choosing a wireless local area network (LAN) involves deciding on the wireless protocol that best serves the needs of the enterprise. A wireless LAN ensures real-time data capture and eliminates anxiety about missed downloads. However, deploying a wireless solution can perpetuate other problems. Data entered using a handheld device must travel to a satellite before being transmitted to the enterprise systems. Operators working in manufacturing plants tend to experience poor reception and interference due to the use of large plant machinery. To circumvent this challenge, some wireless solutions offer strategically placed “pods” or stationary devices so the handheld device can communicate on another frequency. With this solution, however, the communication range is limited and the cost is fairly high. Operators would be restricted to a specific area, and information entered outside that range would not be captured.

### SELECTING A HANDHELD DEVICE

Choosing the best handheld device for the job means considering the application being deployed on the device, as well as the end user’s comfort level. Operators must be comfortable making the conversion from clipboard and pen to mobile device. Before choosing a device, take into consideration whether the device can be secured to the arm, giving the operator full use of his hands, or whether the operator can comfortably enter data while standing; the battery life of the device; the type of operator training required; and where and how the device will be stored.

One issue EH&S managers must remember when integrating handheld devices with EH&S data systems is the durability of the device. Managers of manufacturing plants, for example, should consider purchasing industrially hardened, or “ruggedized,” devices (such as products manufactured by Symbol Technologies and Intermec Technologies Corp.), which are encased in a durable rubber or plastic and will protect the device from spills, bumps, and accidental drops. With these requirements, however, comes extra cost. Expect to pay about two to three times more for an industrialized handheld device.

With the integration of handheld devices in the business process comes the responsibility of retraining operators.

Handhelds use very small screens that can prove more difficult to work with than the proverbial clipboard. Data entry requirements may be such that operators will have to learn new “graf-fiti” handwriting characters for data entry, and may even need to access multiple screens to complete one form. EH&S managers must be sure to consider these issues and implement, and budget for, a training program along with the deployment of handheld devices.

### APPLICATIONS AND OPERATING SYSTEMS

The convenient size of a handheld device also has its disadvantages. With the smaller size comes limited memory capability. When choosing an operating system, you must consider the “footprint,” or size, of the operating system. Also, you must determine what type of applications will be used and whether they will be off-the-shelf or customized. In the EH&S arena, managers will typically integrate “tactical” applications on hand-held devices. These applications are designed to address the critical needs of departments within an enterprise.

Finally, remember to *keep it simple*. Rather than deploying

bulky applications with a collection of bells and whistles, the handheld device should contain the electronic equivalent of essential forms and checklists only. Also, remember that the device cannot be used as a handheld laptop; the memory and data capabilities are simply not there. Initially, EH&S managers should deploy a limited number of small applications on handheld devices, which focus on a few specific tasks. With too many large applications loaded on the device, operators will be forced to download their application each time they check it out. Similarly, when they turn their device in, they will need to “wipe” the application for the next operator. By implementing simple forms and limited applications, EH&S managers can avoid potential IT nightmares.

Deploying a handheld solution in an EMIS will improve the accuracy of data capture, ensure real-time data entry, and help prevent duplication. Remember that although the decision to implement a device-driven solution is clear and the rewards are quantifiable, the obstacles are not always obvious. ☹

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#### About the Author

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