SupplyChainDigest™
Consultant's Corner Feature – March 17, 2005

It's Time to Upgrade Mobile Warehouse Worker Technology

By Iván Pérez-Méndez,
Vice President of Engineering, Cadre Technologies, Inc.

The technology deployed in modern supply chains has improved the accuracy and efficiency of orders, inventory, shipments and transactions. But the final steps in successfully executing all those logistics transactions, performed everyday by many thousands of mobile warehouse workers, are typically relegated to the lowest levels of technology and communications – i.e. pencil and paper.

When you think about it, receiving, picking, replenishment and other warehouse transactions are really the most critical events. A pick is the seminal transaction that transfers ownership from the warehouse (manufacturer or distributor) to the consumer (direct ship or to retail). When a product is removed from a location and added to an order, it is no different than the consumer selecting a product from the shelf as a buying decision. It is the decision about what to select and the process of selecting it.

Equipping mobile warehouse workers with the right tools to execute to expectations has been a challenge for many years. A Warehouse Management System (WMS) typically prepares the work for the mobile warehouse worker. The WMS tracks the location and attributes of product from receipt to storage to picking to shipment.

The mobile warehouse worker receives and accepts incoming shipments, puts away product in bulk areas, moves the product from the bulk area to the order picking areas (replenishment), picks orders, performs any value added processing, checks inventory locations, and ships orders Even today, at the dawn of the 21st century, the most common way for workers to receive work instructions is via paper printouts. Pickers use a printed pick list that tells them where to go and what to pick. They make notations on the printout as they work, and then that information, the result of their work, is entered into the WMS software via a desktop computer. This paper-based process is error-prone and inefficient, not to mention providing no real time visibility of either status or results.

Hand-held RF devices offer a huge increase in efficiency mainly because they provide work instructions to the mobile worker in real-time, eliminating the paper inefficiencies and allowing immediate posting of results to the WMS. However, hand-held terminals do not allow hands- and eyes-free operation. The worker must read the screen and key-in information, which means starting and stopping constantly the tasks to perform this data entry.

Pick-to-light systems offer an extreme example of how the industry has struggled to deliver true hands- and eyes-free tools for warehouse workers. Pick-to-light systems are very powerful, but they are also expensive and inflexible.

Then we have voice. Voice is now used by thousands of mobile warehouse workers. Through speech recognition and speech synthesis, mobile workers communicate verbally with the WMS hands- and eyes-free. With voice, warehouse workers are restricted mainly to picking, replenishment, and cycle counting. However, not all warehouse applications are suitable for a voice interface. The devices that support voice applications are typically dedicated speech computers that do not have screens, cameras or keyboards, although some of these may be attached to the device via cables. Furthermore, these devices are not for general use, they are expensive and they designed only for voice applications. This means that the warehouse must support different types of devices, sometimes from different vendors, for each use.

The availability of industrial Pocket PC computers from major manufacturers is opening up new avenues for improving the efficiency of warehouse mobile workers and therefore of warehouse operations. These small devices offer multiple input and output technologies that enable mobile workers to enter and access information in the most effective manner. They may include browsers, touch-screens, scanners, cameras, RFID readers, speech recognition and keyboards, all in a small, integrated package.

Industrial Pocket PCs offer a completely different alternative that is the best of all worlds. Since they integrate a variety of input and output modalities, these devices are for general use. One device may be used for all mobile warehouse applications.

A well-designed multimodal software application may take advantage of these computers by providing workers with the best input or access modality at the time they need it. Workers can login using the screen or keyboard, offering a high-level of security. They may preview their work or check it's status via graphic displays through the browser. For hands- and eyes-free operations, the worker communicates verbally with the application without the penalties of a dedicated speech computer. If voice becomes inadequate in an area of the warehouse that is temporarily extremely noisy such that is difficult to hear the computer, the worker can use the keyboard and screen until the noise subsides. The built-in camera can be used to gather forensic information on damage, product identification or other issues as needed.

The key value of multimodal software for mobile workers is the presentation of information and the availability to capture data via the most suitable methods, working together seamlessly like a well-trained orchestra. The devices are also significantly more affordable than dedicated speech computers. These advantages will encourage the adoption of multimodal devices and software in the warehouse.

Dr. Iván Pérez-Méndez is Vice President of Engineering, Cadre Technologies, a leading innovator of integrated logistics software. More information is available at www.cadretech.com or by contacting Dr. Pérez-Méndez at ipm@cadretech.com.

About SupplyChainDigest

SupplyChainDigest™ is the industry's premier interactive knowledge source, providing timely, relevant, in-context information. Reaching tens of thousands of supply chain and logistics decision-makers each week, our flagship publications - SupplyChainDigest and SupplyChainDigest – Logistics Edition, and web site (www.scdigest.com) deliver news, opinions and information to help end users improve supply chain processes and find technology solutions.

For more information, contact SupplyChainDigest at:

PO Box 714
Springboro, OH 45066
937-885-3253
info@scdigest.com