with these inventory management systems, allowing invoices to be entered directly into the restaurant's inventory, eliminating the need for data entry while also eliminating the human error involved in manual data entry. Further, many of these systems will automatically survey purveyors' current prices and display the least expensive purchase option to the individual placing a purchase order (assuming, of course, a single source purchase agreement has not been made).

The use of anything other than electronic bid sheets is almost unknown. Very few purveyors who deal with operations of any consequence generate written bids any longer. Even small purveyors like local dairies and produce providers who change their price quotes frequently generate electronic bid sheets and e-mail them to customers using Excel or other spreadsheet applications. These bids can then be uploaded into the I/P system. Combined with the fact that I/P systems are capable of automatically determining which purveyor is offering the best price, the use of single-source contracts is in decline. As long as the I/P system is only offered the choice of food items that meet the operator's quality standards, it can automatically ensure that the best possible price is being obtained.

Efficiency is also being helped by a move toward more precise ordering, driven both by data analysis within the I/P systems themselves and by their integration with other hotel and catering systems. For example, instead of setting a single par stock level for each item and triggering a re-order when inventory falls below that figure, par levels can vary according to known business volume fluctuations by the day of week or season, or even according to the forecasted guestroom occupancy or catering function traffic. Greater precision means fewer lost orders through being out of stock, and less spoilage from being overstocked.

Smaller, stand-alone operations, however, do not enjoy these advantages. They do not have the luxury of purchasing from the multiple vendors that large operations have available to them. Purveyors are not willing to deliver to smaller accounts on a daily basis, nor are they willing to stock items that will not be ordered in quantity. Generally speaking these stand alone operations also generate purchase requisitions manually and then place orders via the internet. Therefore these operations should concentrate on making sure that their purveyors offer the capability to enter invoices directly into their inventory management systems and that prices are negotiated in the traditional fashion, by putting their business out to bid on an annual or semi-annual basis.

RECEIVING

The receiving process is a challenging area to automate, but modern I/P systems help manage it well. Goods are usually received against the electronic order so that only exceptions need to be entered. Items that are over-delivered, substituted with a different pack size or an alternative

product, or delivered without an invoice can all be recorded accurately for later verification. Miscellaneous charges (shipping, handling and taxes) can be allocated to some or all items, or posted to separate general ledger accounts. Since not every item has a bar code label, I/P systems can print them to attach as goods arrive on the loading dock, both to speed data entry there and for use in other areas. While primarily used to generate sales tags for retail items, this is also useful for F&B items. High-ticket items such as sides of meat, for example, can have bar code labels hung next to them in the cooler to speed physical counts.

Bar codes can greatly speed reordering if the chef, for example, does his daily rounds with a hand-held PDA that has a built-in scanner. The codes for required items can be scanned and quantities added quickly, the total order being uploaded to the I/P system when the PDA is docked back in the chef's office. If the hotel has a strong Wi-Fi network throughout the property, of course, the process can be even quicker, but signal strength in the cooler is often marginal. If wireless networking is desired in the kitchen and storeroom areas, a thorough site audit should be done beforehand to ensure complete signal coverage of all appropriate areas.

RFID tags have been receiving a great deal of publicity, and some systems can generate them as easily as bar code labels. Currently, though, RFID doesn't offer much advantage to F&B operations. Apart from the still-high cost of tags and scanner gateways to read them, there are challenges with reading individual item tags on, for example, metal cans containing fluids. Pallet-tagging may be their first usage, to make it easier to check which items from multiple orders have been shrink-wrapped onto a single pallet. For now it's a technology with much future promise, but not one to focus on in the short term.

Generally speaking, smaller stand alone operations do not require such functionality, especially if their purveyors offer the capability to enter invoices into the restaurant's inventory control system electronically. Their food and beverage orders are generally relatively small and these restaurants lack warehouse facilities, so receiving is most often done manually. In this case it is important that management make arrangements to ensure that any discrepancies on invoices be taken care of electronically as well as manually. The process for doing so needs to be agreed upon in advance and corrections need to be made expeditiously. Management needs to be certain that changes will be made before any invoices are signed.

One other thing that is complicating the receiving function is the rise in the number of hotel properties that are leasing restaurant space to independent operators. These restaurants have to share loading docks with the hotels in which they are located. If these restaurants want to use scanners that interface with their own I/P systems connectivity and security could be problematic. Before purchasing such systems these restaurants need to be certain that information can be transmitted from the dock to their systems

and they must be certain that their system does not interfere with the hotel's and that it is not vulnerable to intrusion by users on the hotel's system.

REQUISITIONING

Large hotel properties with central warehouses should allow requisitions only via electronic media. These requisitions can be generated automatically when on-hand stock falls below par levels or they can, of course, also be prepared manually, such as for a chef's daily order sheet. Paperless transmission has really sped up the approval process, and approval itself is often given faster since supporting documents (e.g., copies of the vendor bids, or photos of the items being ordered) can easily be attached. Consolidation of items from multiple approved requisitions into the various vendor orders is also simpler, and shipping instructions can specify which items are to be delivered bundled together for delivery to a single location.

Again, smaller operations without warehouses do not need this capability. Issues of food and beverage are made either by the kitchen manager or the manager on duty. Security concerns in these establishments are addressed in the old fashioned way, by limiting physical access to the food and beverages.

PHYSICAL INVENTORY COUNTS

All systems can print traditional inventory count sheets for the storekeepers to mark with the on-hand quantity of each item in its various pack sizes. However, the process is slow and tedious, as well as prone to transcription errors when the counts are entered into the I/P system later. As a result, hand-held bar code scanners are increasingly used, bringing improvements in speed and accuracy through precise product identification and automatic data upload into the I/P system. Items without bar codes on their own packaging can have adhesive or hanging labels printed for them by the I/P system during the receiving process. These bar code scanners are used when items are requisitioned from the warehouse by the individual outlets to remove items from the warehouse's inventory and add them to the outlet's.

This capability allows I/P systems to track the expected shelf life of fresh produce items, poultry, and other highly perishable products to ensure that stock is rotated or disposed of before it deteriorates. It's obviously important to monitor usage carefully to set proper on-hand quantities; too little and you lose sales, too much and it spoils. Chefs have always had to do this, of course; what's different now is the inclusion of item shelf life in an inventory system for a more structured recording and analysis approach.

For larger operations that can track physical inventory through warehouse controls, monthly physical inventory counts are becoming less common, at least in the United States, and more properties now use cycle counts. A