INVISIBLE SYSTEMS

Just because some systems work unobtrusively behind the scenes doesn't mean they're not making a real contribution to your bottom line. Here are a few that will rapidly pay back their investment.

e're all familiar with the main systems that grab the spotlight whenever hospitality technology is mentioned. PMS, reservations, sales and catering and POS applications all interact pretty directly with guests and are essential to daily operations. But there is another group of underappreciated systems working behind the scenes that might as well be invisible for all the publicity they get.

They're not invisible to the users whose jobs they make easier every day, of course, but they are (and should be) invisible to the guest. Sadly, they're often also invisible to management when investing capital in new technology. Nevertheless, they do make real, positive contributions to smooth operations, maximizing staff efficiency and guest service. And isn't that what good hotel management is all about?

The two main areas covered in this article are inventory and purchasing (referred to as I/P here) systems, and guestservice rapid-response systems. These cover distinctly different areas, but as with many other hospitality systems they've grown in effectiveness, scope and integration with other systems. They do have one other thing in common—a real ROI.

Inventory and Purchasing Systems

The main functions of I/P systems are pretty clear. Purchasing manages the ordering and receiving of products, both F&B and general, at competitive prices. Inventory and requisition controls maintain stock at the most efficient level, handle its transfer from storerooms to kitchens or outlets and track spoilage and loss.

Add in more sophistication and you get menu cost control, automatically updating recipes with the latest ingredient costs and matching POS item sales against depletion of the stock items used to make them. And as in other areas, better interfaces with other hospitality systems (see Interfaces sidebar) are producing tighter controls and a more complete picture of the operation.

Purchasing

Purchasing in many hotels is still often separated operationally between F&B and general areas, the latter covering retail outlet items, FF&E and all other hotel supplies. This is changing to some extent, especially in casinos where POS outlets offer both retail and F&B products, and many larger operations with enterprise accounting suites try to use these applications' general purchasing modules to cover both areas.

However, F&B ordering does have special requirements. Hotels buy an amazing mix of perishable items and other products on a daily basis from multiple national and local vendors, with considerable variation in local and regional item specifications reflecting guest preferences and product availability. Apart from menu changes, individual item container and pack sizes in particular often change frequently.

Although good integration with accounting, especially accounts payable, is still essential, managing all these factors effectively requires a specialized application. Modern systems (such as those available from Eatec, Adaco, Moreton Bay, Agilysys, RHR Systems and newcomer RedRock) combine detailed and complex functionality with great flexibility and significantly improved ease of use.

A major change in recent years is the widespread use of electronic documents bids, invoices and requisitions—to allow a much more efficient quotation process and tighter cost controls. Direct imports of electronic bids keep current pricing from multiple vendors online at all times, through two-way XML links to their systems or from vendors using FTP to post bid files into Internet folders for automatic retrieval by the hotel systems. Smaller suppliers enter their prices into a hotel's standard Excel spreadsheets and e-mail them to the property, again for automatic import into the purchasing system. It's a huge improvement over the tedious, error-prone practice of manually re-keying printed quotes.

Not surprisingly, single-source contracts are losing favor since it's so much easier to keep several vendors' bids current in the system. If you're buying some items on a strict lowest-cost basis, for example, an I/P system can automatically draft multiple purchase orders, picking the right vendor for each item. Even if single-source is preferred for a national contract or other reasons, easy access to multiple vendors' figures helps verify that the supplier's prices are in line.

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

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

by Jon Inge

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. Retail items, for example, don't always have UPC labels but often need bar-coded hanging tags for garments as well as self-adhesive individual or shelf labels. It's useful for F&B items, too; 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 may be marginal.

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 hotel operations. Apart from the still-high cost of tags and scanner gateways 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 had 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.

Requisitioning

Requisitioning is now almost always electronic, although many managers still print a copy for their files. Paperless transmission has really sped up the approval process, and approval itself is often faster since supporting documents (e.g., copies of the vendor bids, or photos of the items being ordered) can be attached. Consolidation of items from multiple requisitions into the various vendor orders after electronic approval is also simpler.

Physical Inventory Counts

As reliance on I/P systems grows monthly physical inventory counts are becoming less common, at least in the United States, and more properties now use cycle counts. A typical breakdown would be china/glass/silver/etc. annually, linen semi-annually, food quarterly and beverage



Loews Looks at The Big Picture

In the debate over individual or centralized systems, Loews Hotels already has some experience with the benefits of sharing services between multiple properties. Three of its 17 properties are in Orlando, Fla., and have shared a central support facility for some time with good results.

"When we decided to go with a single standard inventory and purchasing system chain-wide about 18 months ago," said Zack Miller-Murphy, Loews' vice president and controller, "We wanted from the start to implement it on a centrally hosted basis. Partly this was to help us roll out product lists to the hotels on a uniform basis, but it also allows for more effective central reporting and analysis."

So far 12 of the properties have been brought online, using the system Loews had been using at its Miami hotel for four to five years (ADACO). Miller-Murphy characterized the rate of progress as slower than they'd have liked, but also as emphasizing the effort it takes to set up a comprehensive inventory database properly, and to introduce procedural changes into a traditionally manual hotel environment. Tuning the system for its two Canadian hotels and migrating the Orlando triplets from the current system will complete the roll out.

Loews has been careful to balance global standards with local variations. "We do recognize that each property has its own character and requirements," said Miller-Murphy. "While every item purchased by each hotel is defined in the centralized master database, each property uses a unique sub-set of the master for its own operations. If a new item one property wants to order doesn't already exist in the master, they can create it there (using a pre-determined set of parameters for uniformity) and then add it to their subset."

This uniformity of data clearly helps the consistency and usefulness of the global reporting and analysis Loews values. "Aside from analyzing cost issues or existing control weaknesses and concerns, we don't look so much at the past, on what's already happened," said Miller-Murphy. "The real value lies in focusing on the future. This data lets us look at our beverage potentials, at the profitability of certain items, the impact of different possible menu mixes and pricing, and much more.

"It just helps us make better business decisions going forward," he said.

monthly, though high-cost items are still tracked on a monthly basis with spot checks of other key items.

Bar codes still rule for item tracking, with hand-held scanners bringing big improvements in speed and accuracy through precise product identification and automatic data upload into the I/P system.

Menu Analysis

Recipe pricing and menu analysis are tempting areas for refining cost controls, but if overdone can quickly bog down the users in a neverending round of data entry and maintenance, especially if a creative chef changes menus frequently. It's easy to make recipes too detailed (one pinch of salt, one pinch of pepper: these are consumables) and managers must keep an eye on what's really worth tracking. Overall cost percentages are clearly the key figures to watch, but at least some menus should be costed on a periodic basis just to keep an eye on whether their pricing is still appropriate.

Banquet costing is simpler since there are more fixed menus. Giving the sales managers access to the menu costs can be a great help when a client is negotiating prices, since they'll know how low they can go and still return a profit. The banquet checks will

need to be run through the POS to track sales against production, which may require a change in current procedures.

Although the extra return from recipe entry is often seen as requiring a daunting data effort, some vendors will enter a given number of recipes as part of the system implementation. It is certainly worth doing periodically for common and high-priced dishes as a spot check on prices, especially on brunches and buffets. Casinos in particular see recipe pricing as a vital part of their cost control.

Central Purchasing

Central purchasing arrangements are still a mixed bag. Multiproperty operations clearly benefit from leveraging their purchasing volume to maximize discounts, but the difficulty lies in defining A recent AMR Research survey found that a 3 percent improvement in perfect order fulfillment translated to a 1 percent increase in profits.

common item standards for geographically diverse properties.

This isn't so much of a problem for general items but local F&B variations are common, making it difficult to accumulate significant volumes. Even if a chain has standard mixed-drink recipes, for example, the actual brand available for a particular ingredient can easily vary from region to region.

Consequently many chains' centralized systems tend to focus principally on non-F&B items, as do the hotel-sponsored purchasing companies such as Avendra and Birch Street. Even without wide commonality of individual items, though, central systems can make a major contribution to operating efficiency by consolidating the spend in various categories for the chain as a whole.

Compliance with national contracts is nevertheless a major concern for the chains,





which often use centralized purchasing systems to track it. One property taking a good deal from a local vendor may jeopardize significant discounts if it results in the chain falling short of its quantity commitments to the national provider. It's not unknown for hotels in a small regional cluster not to be allowed to place orders at all, and be restricted to sending requisitions to a corporate purchasing office for action.

As consolidation continues in the industry both between hotel operators and between vendors, procurement standards for regional operations—or even corporation-wide—will become more common, driven by the demand for greater control and efficiency. The use of centralized purchasing operations is thus likely to gain momentum.

Remotely Hosted Systems

Interest continues to grow in the ASP model of vendor-hosted or third party-hosted systems, also known as buying Software as a Service (SaaS). They are an attractive way of reducing system admin and security costs, and a good way for smaller properties with little available capital to get started. A hybrid approach is often used, with the software license

fee paid up front followed by just the monthly hosting costs, instead of a single monthly fee that covers both.

There is often a preference for hybrid rather than fully remote system architecture, too, basing some form of server at the property. This tends to make interfacing with the local POS systems more convenient, and the central system can still access the local data remotely for reporting and to update menu content and pricing.

ROI

The value of reducing errors in the purchasing process is significant; the National Restaurant Association estimates that 1 percent of all invoices are incorrect. Electronic documents help by making it much easier to do a triple check, comparing items ordered with those received and those invoiced. Not surprisingly the latter two almost always agree, but overdelivery and vendor substitutions can be expensive. Highlighting differences from the order is the first step to effective cost control.

Other factors contributing to I/P systems' ROI include:

• holding people accountable, by checking that major items ordered (e.g., 10 cases of T-bone steaks) were all tied to sales recorded in the POS system or to specifically-approved spoilage write-offs, and don't just disappear

• lowest-price bids being kept in the system at all times, automatically

• more-precise ordering through managed par levels

• better communications with the primary vendors, to alert them to future demand peaks and to identify substitutions as soon as an order has shipped and plan around it

The payoff for companies with high rates of "perfect orders"—those that are complete, in the right place, undamaged and on time—can be substantial. A recent AMR Research survey found that a 3 percent improvement in perfect order fulfillment translated to a 1 percent increase in profits. Companies that ranked high carried less inventory, had shorter cash-to-cash cycle times and were more profitable overall.

Guest Rapid Response

Developed originally for very specific purposes, rapid response systems have developed into some of the most versatile applications around for improving both guest service and overall operational efficiency. As they say, you can't manage something unless you measure it, and by tracking and recording all manner of activities these systems provide a wealth of highly usable management data.

Their overall focus is to track a request to do something, and to measure who the task was assigned to and how long it took to complete. Some systems started as engineering work order management systems and extended their coverage to guest requests (MTech's Espresso! and HotSOS), while others began as pure guest-request systems and added engineering task functionality later (Guestware



Figure 2: Modern interface engines allow for integration with a wide variety of other systems. Here a message in an older character-string format is parsed and converted into XML, both for use within the rapid response system itself and for ease of integration with other systems. *Courtesy of Diversified ComputerCorp.*

and Metromedia's HotelExpert). Dispatch was originally handled solely by service center operators, but is increasingly automated through direct-dialing to the system and entering codes for the request/problem and location. The key to their effectiveness is that escalation times and actions are built in to make sure requests don't get forgotten, and that standard response time guarantees are met.

Later developments have allowed tasks to be preconfigured into the system and triggered by other events. These can be from within the system, such as a plumbing repair needing housekeeping to inspect the result, but can also come from external sources. A VIP checkin within the PMS, for example, can trigger a page to the general manager to come to the front desk, and a message to housekeeping to deliver a VIP's amenity to her room-the actual room, not the one preblocked for her but which wasn't ready or suitable when she arrived. And delivery of the amenity or of other service items, such as bedboards or cots, can itself set up a collect task to be triggered by the guest's check out.

Once you've set up a system to initiate and track actions, of course, the sky's the limit on what you use it for. Compliance statistics on vendors' contractual obligations (on-site response within four hours of your call) will prove very useful at contract renewal time, and reminders of those renewals can be sent automatically to the appropriate department manager for action 30 days before expiration.

All this data tracking is highly beneficial, not only to maintain guest service standards but equally importantly to suggest business process improvements. Services that consistently take longer than expected may need some change to staffing or procedures, and staff scheduling itself can be adjusted to match recorded peaks in typical guest requests. Guest requests and complaints can be attached to a guest profile, both to track their preferences, such as a feather pillow, and for pre-arrival checks to make sure that the same problem doesn't recur on their next visit. Rooms where successive guests report the same type of problem can be identified quickly and repeat problems addressed efficiently.

Improved Communications

Communication with staff members has improved with more versatile and convenient devices such as Blackberry and Treo-style PDAs. Capable of acting as pagers, text-message units, phones and mobile workstations, a single device often provides more functionality than the multiple specialized ones used before. Some can even take digital photos of an incident site (e.g., a room found to be trashed after a complaint about excessive noise) for attachment to the request record.

Pure voice communications still have a role, of course. The unobtrusive voice-controlled units from Vocera show particular promise, especially when used with an earphone in guest areas. Star Trek-like onetouch activation doesn't hurt their appeal, either.

Communication is still a significant challenge, though. It's a fast-changing area, and there's no global standard solution. Even in the United States, a chain with a nationwide contract with one communications provider may find that good coverage at some of its hotels is only possible with a different carrier. Communications must therefore be individually tailored to specific sites, and only after a thorough site survey to ensure effective signal coverage.

Who Gets The Call?

Even with good communications, assigning the task to the right person is an ongoing challenge. Identifying the right discipline for a specific task is easy-bellman, housekeeping, plumbing or electrician. The actual assignment needs to balance two separate considerations: making sure all staff with the right skills have an equal opportunity for guestcontact service (bellman, housekeepers, etc.), and knowing which specific person is closest to the appropriate location to provide the fastest response.

Some systems allow team dispatching, with calls rotated to each team member in turn to equalize service opportunities. Some provide intelligent dispatching, to help if a new call comes in from an area to which the system knows it just sent a staff member. Position location would be ideal, of course, so the system could know exactly where all staff members are at all times and thus route the call to the closest appropriate person. Some Wi-Fi vendors claim to be able to locate a Wi-Fi receiver to within 10 feet through triangulation, but the real-world accuracy of this technique in a hotel remains to be demonstrated, especially in the second basement.

RFID may be a promising avenue in the longer term, given the growing interest in proximity keycards for staff and guests. As the cost of RFIDdetecting gateways comes down, for example, cruise ships are beginning to put them at their dining room entrances to check that passengers are arriving for the right sitting and to announce their names to the host. Up-market hotels are also interested in this approach to allow concierges and restaurant hosts to greet an approaching guest by name, although the short distance at which RFID keycards can be read



Keeping service levels high at The Westin Maui

Like all successful resorts, The Westin Maui prides itself on providing a high level of guest service, anticipating preferences and responding rapidly to requests. A complex task at the best of times, it became even more challenging when Westin opened the first phase of its timeshare operation just a mile away, and decided to manage it using the systems installed at the resort.

"Keeping on top of every guest request is essential," said Don Kleeman, area manager information technology, Hawaii & French Polynesia for Starwood's Hawaii Technology Group. "Westin pioneered the one-stop central service concept many years ago with its Service Express program, but having a good system in place to dispatch, track and analyze every call is critical to making it work," said Kleeman.

The Westin Maui uses Metromedia's HotelExpert, managing calls for room service, baggage, valet parking, housekeeping, timeshare sales managers and many other areas, and analyzing the data constantly to refine both the organization and the system.

For example, initially each major department set up its own codes and coverage, but this caused some duplication and confusion. "Now IT controls the configuration, working with the operations managers in monthly meetings to make sure everything is covered appropriately," said Kleeman. "This way we were able to set up similar codes covering both the hotel and the timeshare buildings for more consistent analysis, yet still route the calls over the appropriate paging network to reach the right person."

Other examples come through experience. "We used to send all engineering requests to two 'quick-call' technicians, but found they were too swamped to be effective. So we set the dispatch codes to switch automatically at different times, going directly to specialist trades (plumbing, electrical, carpentry) during the day and to the 'quick-call' crew after 3 p.m.

"We also enter all guest comment cards into the system every day instead of just circulating them around the management team," said Kleeman. "Now all managers see them the same day, and can correct issues and recognize outstanding employees immediately. It's much more effective. We went live with HotelExpert at the end of 1999, and recently became the first hotel to record over one million requests using it. That's an average of around 400 requests a day," he said. "I cannot imagine how any large resort could possibly maintain high service standards without a system like this."



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Figure 3: Details and status of a specific guest request in a typical concierge system diary, with direct access to many outside service providers and showing the status of all guest requests. *Courtesy of GoConcierge.net*

is still an issue and the cards themselves are still uncommon. For now, though, using them to track staff location would require too many gateways to be cost effective.

PMS Integration

PMS integration used to mean importing the next day's arrival list, comparing it with the rapid response system's history files to look for matches, and manually scheduling actions to prepare for the guests' arrival. Some systems can now set a flag in a PMS guest profile to indicate that more complete history resides in the rapid response system, allowing it to be proactively checked at the time of reservation.

More sophisticated interfaces allow for a high level of data exchange, and recognize the need to keep different data at different locations. GuestWare's link with Marriott's PMS, for example, imports and stores global preferences from Marriott's rewards program, maps PMS special request codes into GuestWare preferences, and sends data on guest requests, local preferences, incident reports from their stay and other local profile data (even if they're not in the rewards program) back for review and, if desirable, incorporation into the global profile. The local profile may also contain copies of correspondence with the guest, and guest satisfaction survey input.

Complaints from an earlier stay (e.g., phone not working properly) can be kept in the guest's profile to trigger future actions. When the guest books a return visit the system can create a task (check phone) to be triggered automatically the day before arrival to ensure that the same problem won't recur.

For properties that include condominium units, tasks can be set to charge the owners' maintenance accounts. If a room attendant sends in a call to fix, say, a stained carpet, housekeeping can assign it to the right trade at rate X for time Y, adding in the materials and any special equipment needed (such as a carpet shampooer and a dehumidifier) at a usage/rental cost of Z. When the task is closed in the system the total cost can be billed back to the unit owner automatically.

One intriguing development for properties interested in housekeeping productivity is the potential for these systems to replace the PBX interface for room status changes. Room attendants record their arrival in a guestroom to start the clock on a timed task; reporting the room as cleaned automatically creates an inspect room task for the supervisor, ensuring that this step isn't overlooked. Task completion can be reported either using hand-held PDAs or by direct-dialing into the system over the guestroom or house phones. There'll still need to be a PMS interface to update the room status, but it can be part of the rapid response interface instead of a separate one going through the telephone system.

Rapid-response systems can also serve as an electronic manager-on-duty logbook, as a record of noteworthy events, staff incidents, guest requests and complaints, and

the recovery tasks. Staff rounds, detailed confidential documents, police reports, incident reports or photos of an accident can be attached and easily searched if necessary for a later investigation.

Concierge Systems

A special case of guest-request tracking is the concierge system, though these are used more to track the status of a guest's request than the time taken to fulfill it. Systems such as GoConcierge and Gold Key's Concierge Assistant focus on comprehensive contact and event listings, and a shared electronic logbook of all guest requests (see Fig.2) to prevent duplicate bookings. They also include direct links to such external services as OpenTable and Shuttle Express, so staff can book dining reservations or airport transfers without leaving the system.

Systems Overlap

Clearly there's overlap between these and other systems. Inventory and purchasing systems already receive items and transfer them to other locations, so package tracking is a natural extension even if few do it natively just yet. Rapid response systems are expanding into package tracking and concierge services, and adding tighter integration with property management systems, I/P systems (for reordering items called out by maintenance work orders) and engineering/preventive maintenance systems.

Concierge systems are moving into

rapid response areas with package tracking and other functions, and even linking their bookings to a PMS reservation to produce a single guest itinerary and a more complete guest profile. The potential for a more comprehensive, unified system or set of systems is enticing. GoConcierge, for example, is currently developing links with MTech's HotSOS to leverage the best features of each, and it'll be interesting to see what other combinations come to market.

The Bottom Line

Staffing levels at hotels aren't getting any higher, but demands for more precise operations and higher standards of guest service continue to rise. Managers will always be required to do more, and better, with fewer people. Despite their being less visible, automating and integrating back-ofhouse functions can make just as significant a contribution to smoother running operations and higher guest satisfaction as the more guest-visible front office systems.

Their greater benefit lies in the business process improvements they make possible. It's the data-driven re-organization of work flow, responsibilities and staff scheduling that makes the real difference to the bottom line.

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Interfaces

As in so many areas of hospitality technology, improving one system can make a measurable difference, but integrating several together raises efficiency to a much higher level by giving each a more complete and accurate picture of the whole.

As an example, consider the following ways in which I/P systems interact with other applications:

>>POS: upload new inventory items (retail), recipes (F&B) and their costs, download sales figures (all) to compare usage against changes in inventory and to trigger requisitions and re-orders.

>>**AP:** upload invoices and payment approval, download new vendor profiles.

>>**S&C:** upload costed banquet menus, download production forecasts.

>>BI: analyze sales, usage, profitability of each outlet/ department with drill-down to details, and the accuracy of par levels vs. re-ordering cycles, delivery times, seasonal/day-of-week variations and forecast demand, download recommendations on varying par levels and making menu changes to drop unprofitable items.



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