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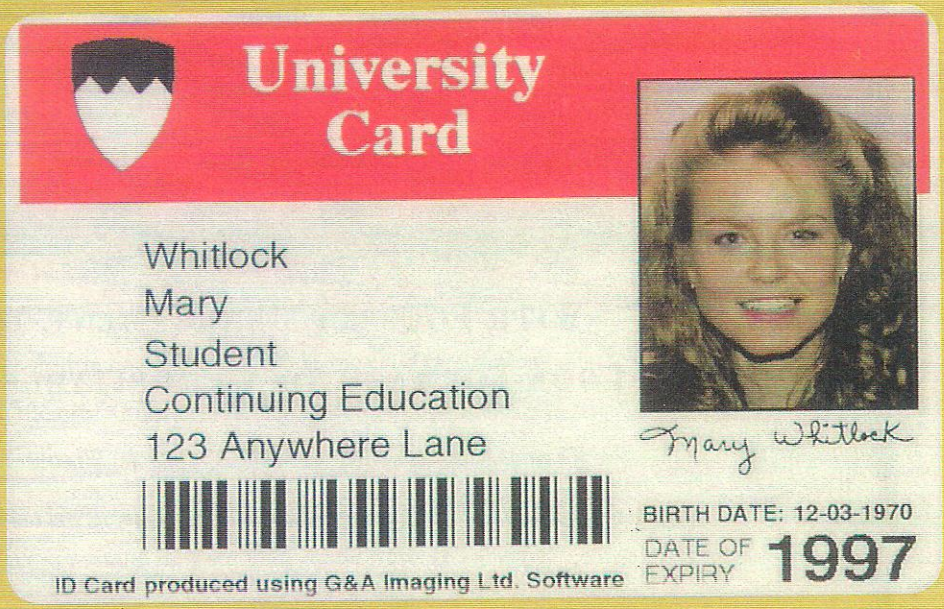
Playing Your Cards Right



Campus Cards Present Opportunities and Challenges

On-Line or Off-Line Vending?

Campus Cards Present Opportunities and Challenges

by Robert C. Huber

The wave of "All-Campus Card" installations over the past several years has provided cardholders with hundreds of new services and increased customer satisfaction. Within the past three years many institutions have discovered a substantial source of new revenue—card vending.

Card vending services now include food and beverage; laundry; copiers; amusements; dispensers for tokens, newspapers, stamps, and other products and services; and parking.

A major point of discussion revolving around this subject is whether vending should be on-line or off-line. This can be a complex issue, involving a number of considerations. In general terms, "on-line" refers to a system or equipment that is in continuous contact with a host computer. "Off-line" is a system or equipment that is independent of a host computer and is often referred to as "standalone".

On-line card systems use industry standard media (usually a magnetic stripe) on the back of the card, often referred to as a "primary" stripe. Off-line card systems use either an additional stripe (often called secondary stripe, vending stripe, prestored value stripe, cash stripe, or junk stripe) or a smart card (containing an integrated circuit chip). On-line systems can use on-line vending, or a combination of both on-line and off-line vending.

Most typical smart card applications use off-line communications. However, smart card readers that use a polled environment provide a greater degree of redundancy with respect to recovery of financial and transaction data than do traditional off-line reader configurations.

For administrators considering expansion of campus card services to include vending, this article provides an impartial "snapshot" of the current advantages and challenges of both on-line and off-line systems. To assist with analysis of this data, opportunities for and challenges of both on-line and off-line vending are explored. Major issues, in order of suggested priority, include revenue, security, costs, reports, and technical issues. The following are general recommendations:

- Appoint a vending project manager for the campus who should locate all vending machines (not as easy as it may first appear) and secure copies of all procurement and service contracts.
- Develop a comprehensive long-term strategic plan for campus vending before procurement. The plan should focus on the "customer," rather than the institution, for maximum revenue benefit. In addition, the plan should include provisions for ongoing mar-

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keting efforts targeted at card vending.
- Contact prospective vendors after the above steps have been completed.
- Commence all card vending applications with pilot projects.
- Regularly review designated vending centers, types of machines at those locations, and individual machine usages (cash versus card transactions).

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ON-LINE SYSTEM ADVANTAGES

Revenues
- Existing All-Campus Card populations (residents, commuters, faculty, staff), with a debit account, receive automatic vending functionality.
- Single stripe cards are simpler to understand and use.
- The average transaction amount is usually higher due to user perception of unlimited credit.
- Increased card transactions reduce cash handling expenses.
- Potential revenue is greatest if vending is associated with a campuswide debit account that provides access to a variety of debit card retail operations.
- Single campuswide debit account promotes on-campus "discretionary spending."
- Convenience promotes "impulse buying."
- Snacks may be purchased via on-campus card vending rather than at off-campus establishments.
- Card debit accounts provide prepurchase revenue.
- The value of "unused" debit account revenue, retained by most institutions at the end of the school year, may be substantial.

Security
- Increased card transactions reduce vandalism of vending machines.
- Lost cards can be deactivated instantly, usually by the security office or card service center, to prevent or reduce cardholder financial loss.
- Systems with an optional daily spending limit feature can prevent or reduce cardholder financial loss at unattended debit locations.
- Institutions can utilize secure (high coercivity) magnetic stripe cards.
- Card accounts usually include expiration dates and lost card codes to prevent unauthorized usage.
- Many systems provide optional PIN security at each machine.

Costs
- On-line systems can use cost-effective single magnetic stripe cards.
- Because on-line readers have fewer mechanical parts than those for off-line systems, reader maintenance is less expensive and procurement costs are usually the same.
- Procurement, installation, maintenance, and communications lines for ADM machines are not required.

Reports
- Many systems now provide financial reports detailing cash as well as card transactions for accurate recording of all vending machine receipts. The data are reported directly to the institution rather than via a service vendor.
- Data can be retrieved remotely and automatically on a real-time basis.
- Reports per machine (or groups of machines) are available instantly and as frequently as desired.

Definitions

ADM - Automatic Debit Machine, often used to transfer credit to an off-line debit stripe (such as a vending stripe), either from cash or from an on-line campus account.

Attended - Refers to either a type of equipment or card application that must be operated by an employee for the cardholder (such as a cash register).

PIN - Personal Identification Number, a series of confidential numbers often used to access or obtain a product or service.

Poll - To retrieve data electronically; usually initiated by a host computer system.

Unattended - Refers to either a type of equipment or card application that is self-operated by the cardholder (such as a vending machine).

- Reports are available at the card service center or electronically throughout campus.
- Detailed data are available for marketing studies to track vending usage. Analysis can be done by machine type, population, cardholder, time of day, and other measures.

Technical

- The response time is usually acceptable.
- Many systems can remotely report when a vending machine is out-of-service.
- New radio frequency communications technology can now provide wireless communication between vending machines (for pilot projects or sites that are complex or costly to wire).

ON-LINE SYSTEM CHALLENGES

Revenues

- All users must be included in a centrally controlled system database.
- To add value to their debit cards, users must first contact the card service center or bursar's office during regular office hours, which is often inconvenient to students.
- If communication is interrupted between the host computer and the vending machine, card vending capability may be suspended, with potential loss of revenue.
- A computer disk crash may result in lost transactions (revenue) from the time of the last system backup (unless a shadow disk is used or printed copy of all transactions is retained).
- Users may purchase snacks at card vending machines instead of full meals at campus dining outlets.
- The potential to abuse the on-line debit privilege is greater than it is with a limited prestored value account.

Security

- The potential financial loss of a lost card (due to unauthorized use at unattended locations) is equal to the balance of the debit account, until reported and deactivated.

Costs

- The institution must pay installation and maintenance costs for communication lines to all machines.
- An on-line system usually necessitates procurement and maintenance of communication controllers (to reduce communication line costs).

Reports

- Interrupted communications between the host computer and the vending machine will usually delay report generation until communications are restored.

Technical

- An on-line system requires communication lines or radio frequency equipment to all on-line vending machines and communication controllers.
- Card readers at vending machines may require isolated electrical circuits from vending machines' circuits.
- Vending capability is usually determined by host computer configuration.
- The computer host may require expansion to include sufficient ports for additional communication lines to vending machines and/or communication controllers.
- Vending purchases usually require at least two system transactions per event.
- Radio frequency communications equipment can be expensive.

OFF-LINE SYSTEM ADVANTAGES

Revenues

- Prestored value can be added to the secondary stripe at the convenience of the cardholder at self-service ADM machines.
- User spending is granted by an instant "dispensed" account.
- Increased card transactions reduce cash handling expenses.
- Card vending capability is unaffected by the status of the campus debit computer system, communication controllers, or communication lines.
- Convenience promotes impulse buying.
- Snacks may be purchased via on-campus card vending rather than at off-campus establishments.
- Campus visitors can purchase and immediately use vending cards dispensed from self-service ADM machines.
- Card debit accounts provide prepurchase revenue.
- The value of unused debit revenue (residual) on lost, unused, and/or discarded cards may be substantial.

Security

- Increased card transactions reduce vandalism of vending machines.
- Potential financial loss of a lost card is limited to value on the secondary stripe.

Many systems now provide financial reports detailing cash as well as card transactions for accurate recording of all vending machine receipts. The data are reported directly to the institution rather than via a service vendor.

- Most ADM machines now provide an optional feature to limit the amount of prestored value on the secondary stripe.

Costs
- Procurement, installation, and maintenance of a campus debit card system are not required.
- The institution does not have to pay installation and maintenance costs for communication lines to all machines.
- Procurement, installation, and maintenance of communication controllers are not required.
- Procurement costs per card reader are usually equal to, or less than, those for on-line readers.

Reports
- Many systems now provide financial reports detailing cash as well as card transactions for accurate recording of all vending machine receipts. The data are reported directly to the institution rather than via a service vendor.

Technical
- Response time is usually equal to, or faster than, response time for on-line systems.
- Vending reader capacity is unaffected by campus debit computer configurations.

OFF-LINE SYSTEM CHALLENGES

Revenues
- A dual debit account is often required for campuswide spending.
- To add value to a secondary stripe, a user must be familiar with ADM machine locations.
- Lack of sufficient ADM machines in convenient and safe locations throughout campus may inhibit card vending purchases.
- The average transaction amount and potential vending revenue may be limited due to user perception of limited credit.
- If communication is interrupted between the ADM and computer host, increases to card value may be temporarily suspended.
- Reader memory malfunctions may result in lost transactions from the time of the last system polling (unless a journal tape of all transactions is used).

Security
- Lost cards result in loss of the entire prestored value on the secondary stripe.
- ADM machines that accept bills impose the same or greater security risk as vending machines that accept bills.
- Administrators cannot deactivate a card or the prestored value on the secondary stripe if lost.
- Some systems do not use high coercivity magnetic stripes.
- Cards do not include expiration dates or lost card codes.
- Many systems do not provide optional PIN security.

Costs
- Off-line systems usually require a dual stripe if All-Campus Cards are used.
- The secondary stripe adds a minor expense to the card stock price.
- An off-line system may require "recarding" of the entire campus to use new vending applications.
- Cardholders must consciously add value to their secondary stripe on a frequent and regular basis to use vending applications.
- An off-line system requires procurement, installation, and maintenance of sufficient ADM machines at strategic campus locations.
- Polled vending machines require installation and maintenance of communication lines to all machines for periodic data retrieval.
- If the system is used with a campus on-line debit account, the institution must install and maintain communication lines to all ADM machines.

Reports
- Reports and data must usually be retrieved manually at each individual machine (unless polled automatically).
- Reports per machine are usually available only at the end of a day (or as often as polled).
- Reports usually are not available electronically throughout campus.
- Detailed data for marketing studies to track vending usage typically are not provided.

Technical
- An off-line system requires communication lines to all ADM machines if used with a campus on-line debit account.