

# *VENDING: On/Line or Off/Line?*

What are the opportunities and challenges associated with vending and the all-campus card?



By Robert C. Huber

**T**he wave of "All-Campus Card" installations over the past ten years has provided cardholders with hundreds of new services and increased customer satisfaction. Within the past three years many institutions have begun to take an innovative approach to an old campus colleague, and for many schools it is providing a substantial source of new revenue. This application is card vending.

Card vending services now include FOOD and BEVERAGE (soft drinks, hot drinks, ice cream, fruit, sandwiches, french fries), LAUNDRY (washers, dryers, soap dispensers), COPIERS (photocopiers, laser printers, fax machines, microfiche printers), AMUSEMENTS (videogames), DISPENSERS (tokens, newspaper boxes, stamps, public telephones, car washes), and PARKING (which we will save for another article).

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, but one that should include a number of considerations. In general terms, "On/Line" refers to a system or equipment which is in continuous contact with a host computer, and where reports are generated. "Off/Line" refers to a system or equipment

which is independent of a host computer and is often referred to as "stand alone".

On/Line "All-Campus Card" systems utilize industry standard media (usually a magnetic stripe) on the back of the card, often referred to as a "primary" stripe (i.e., ABA Track II). Off/Line "All-Campus Card" systems utilize either an additional stripe (i.e., secondary stripe, vending stripe, pre-stored-value stripe, cash stripe, junk stripe) or a smart card (containing an integrated circuit chip). On/Line systems can utilize Off/Line vending, or a combination of both On/Line and Off/Line vending.

For administrators considering expansion of "All-Campus Card" services to include vending, the following pages contain an impartial "snapshot" of the current advantages and challenges of *both* On/Line and Off/Line. To assist with analysis of this data, key definitions are followed by opportunities and challenges of both On/Line and Off/Line vending. "Challenges" should not be viewed as walls but simply as hurdles to consider and to discuss with prospective vendors. Major issues, in order of suggested priority, include: revenue, security, costs, reports and technical issues. General recommendations include:

## ON/LINE ADVANTAGES

1. Appoint a Vending Project Manager for your entire campus; he or she should locate all vending machines (not as easy as it may first appear) and secure copies of all procurement and service contracts;

2. Develop a comprehensive, long-term, strategic plan for campus vending before procurement. The plan should focus on the "customer," not the institution, for maximum revenue benefit and include provisions for ongoing marketing efforts targeted at card vending;

3. Contact prospective vendors *after* the above steps have been completed;

4. Commence all card vending applications with "pilots";

5. Regularly review designated vending centers, types of machines at those locations, and individual machine usages (cash vs. card).

Many campuses have experienced from 10 percent to 400 percent increases in vending revenues with the addition of "AH-Campus Card" vending. With appropriate strategic planning, your campus can too.

### DEFINITIONS

*"ADM" - Automatic Debit Machine, often used to transfer credit to an off/line debit stripe (i.e. vending stripe), either from cash or from an on-line campus account.*

*"Attended" - Refers to either type of equipment or card application which must be operated by an employee for the cardholder (e.g., 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 type of equipment or card application which is self-operated by the cardholder (e.g., vending machine).*

### Revenues

- Existing "All-Campus Card" populations (residents, commuters, faculty, staff), with a debit account, receive vending functionality *automatically*.
- Single-stripe cards are simpler to understand and utilize.
- "Transaction average" 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 campus-wide debit account which provides access to a variety of debit card retail operations.
- Single campus-wide debit account promotes on-campus "discretionary spending," which otherwise may be lost off campus.
- Convenience promotes "impulse buying."
- "Snacks" may be purchased via on-campus card vending rather than at off-campus establishments.
- Card debit accounts provide pre-purchase revenue.
- Value of "unused" debit account revenue, usually 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/reduce cardholder financial loss.
- Systems with optional "Daily Spending Limit" feature can prevent/reduce cardholder financial loss at "unattended" debit locations.
- Can utilize security (high coercivity) magnetic stripe card.
- Card accounts usually include expiration dates and lost card codes to prevent unauthorized usage.
- Many systems provide optional PIN security at each machine.

### costs

- Can utilize cost-effective single magnetic stripe card.
- Procurement costs per reader are usually the same as off/line (due to fewer mechanical parts).

- Reader maintenance usually less than off/line (fewer mechanical parts).
- Procurement, installation, maintenance and communications lines for ADM machines not required.

### Reports

- Many systems now provide financial reports detailing "cash" as well as "card" transactions for accurate record of *all* vending machine receipts, reported directly to the institution rather than via a third-party (e.g., service vendor).
- Data can be retrieved remotely and automatically on a real-time basis.
- Reports per machine (or groups of machines) available instantly and as frequently as desired.
- Reports available at Card Service Center or "electronically" throughout campus.
- Detailed data available for marketing studies to track vending usage (i.e., by machine type, population, cardholder, time of day, etc.).

### Technical

- Response time usually acceptable.
- Many systems can now report when vending machine is out-of-service (remotely).

## ON/LINE CHALLENGES

### Revenues

- All users must be 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 host computer and the vending machine, card vending capability may be suspended, with potential loss of revenue.
- Computer disk crash may result in lost transactions (revenue) from time of last system backup (unless shadow disk is utilized or printed copy of all transactions is retained).
- Users may purchase "snacks" at card vending machines instead of full meals at campus dining outlets.
- Potential to abuse on/line debit privilege is greater than with limited pre-stored 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

- Installation and maintenance costs for communication lines to all machines.
- 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

- Requires communication lines 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.
- Computer host may require expansion to include sufficient ports for additional communication lines to vending machines and/or communication controllers.
- Vending purchases usually necessitate at least two system transactions per event.

## OFF/LINE ADVANTAGES

### Revenues

- Pre-stored value can be added to the secondary stripe (i.e. vending stripe) at the convenience of the cardholder (24 hours / 7 days) 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 status of 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 utilize vending cards dispensed from self-service ATM machines.
- Card debit accounts provide pre-purchase revenue.
- 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.
- The potential financial loss of a lost card is limited to the value on the secondary stripe (i.e. vending stripe).
- Most ADM machines now provide an optional feature to limit the amount of pre-stored value on the secondary stripe (i.e. vending stripe).

### costs

- Procurement, installation and maintenance of a campus debit card system are not required.
- Lack of 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, on/line readers.

### Reports

- Many systems now provide financial reports detailing "casli" as well as "card" transactions for accurate record of *all* vending machine receipts. reported directly to the institution rather than via a third-party (e.g. service vendor).

### Technical

- Response time is usually acceptable and equal to, or faster than, on/line.
- Vending reader capacity is unaffected by campus debit computer configurations.

## OFF/LINE CHALLENGES

### Revenues

- Dual debit account required for campus-wide spending.
- To add value to a secondary stripe, user must be familiar with location of ADM machine locations.
- Lack of sufficient ADM machines in convenient and safe locations throughout campus may inhibit card vending purchases, otherwise reverting to cash purchases or no purchases.
- "Transaction average" and potential vending revenue may be limited due to user perception of "limited credit".
- If communication is interrupted between ADM and computer host, increases to card value may be temporarily suspended.
- Reader memory malfunctions may result in lost transactions (revenue) from time of last system polling (unless journal tape of all transactions is utilized).

### Security

- Lost cards result in loss of entire pre-stored value on secondary stripe.
- ADM machines which accept bills impose same or greater security risk as vending machines which accept bills.
- Cannot deactivate card or pre-stored value on secondary stripe if lost.
- Some systems do not utilize security (high coercivity) magnetic stripe.
- Cards do not include expiration dates or lost card codes.
- Many systems do not provide optional PIN security.

### costs

- Requires dual stripe (if used as an "All-Campus Card").
- Secondary stripe adds cost (minor) to card stock price.
- May require "re-carding" of entire campus to utilize new vending applications.
- Cardholders must "consciously" add value to their secondary stripe on a frequent and regular basis to utilize vending applications.

- Requires procurement, installation and maintenance of sufficient ADM machines throughout strategic campus locations.
- "Polled" vending machines require installation and maintenance of communication lines to all machines for periodic data retrieval.
- Requires installation and maintenance of communication lines to all ADM machines (if used with campus on/line debit account).

### Reports

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

### Technical

- Requires communication lines to all ADM machines (if used with campus on/line debit account).

## SMART CARDS

Current smart card technology employs off/line communications. However, smart card readers which utilize 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.

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