

2005 DEX Technology Analysis

inOne Management Report for Vending Operators

inOne Technology, LLC compiled this analysis in cooperation with the National Automatic Merchandisers Association (NAMA). It is provided as our “collective best” understanding of the origin, the nature and the benefit of DEX data utilization.



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DEX Origin & Status:

“DEX” or DEX\UCS stands for Data Exchange\Uniform Communications Standard. Within the vending industry, it defines the transfer of information\data between a Hand Held Computer (HHC) or Data Collector and the electronic vending machine. The Food Marketing Institute, along with the major food retailers, defined the original DEX framework in the mid 70s. Their objective was to standardize the transfer of product information between a supermarket’s computer and the delivery driver’s HHC. Coca-Cola, recognized the benefit of faster back door check ins using the DEX concept and quickly merged it into their HHC software. As Coca-Cola moved more into electronic vending, they also realized that if their vending machines had DEX capabilities their CASH reconciliation could be both simplified and much more efficient. In the early 80’s, Coca-Cola began specifying basic cash DEX data capabilities in new vending equipment.

About 1986, NAMA’s Vending Technology Standards Committee created the DEX Data Transfer Standard (DTS). This set the baseline for information to be collected in a vending machine and how that information would be retrieved. At that time, the DEX protocol was incorporated as an integral part of the DTS. Thus, a DEX standard was established, but continues to evolve, with both vending machine and product manufacturers employing variations that fit their individual objectives, just as the mass-food retailers still do for their purposes.

In the early 90’s, recognizing the need for plug-n-play DEX upgrade technology and uniform DEX data access, inOne began mapping the vending DEX universe. Today the top 4 vending software providers still rely on inOne’s DEX decoding library and field technician training to facilitate their DEX processing technologies. In 2000, inOne wrote the guidelines for the newly adopted Edition 6 of the international DEX “DTS” standard, at the invitation of NAMA and the European Vending Association (EVA).

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DEX Utilization Impact:

Every operator's challenge is to optimize income and profits, while controlling operating costs. DEX utilization plays an essential part in overcoming this challenge. The industry has generally concluded that DEX utilization technologies, which include wireless, will reinvent the vending business. The following ROI analysis of DEX utilization supports that conclusion.

DEX Cash Control Impact: Many vending operations average from a 3-5% variance between cash expected (meters and/or product sold) to cash actually accounted for. With DEX cash-audit, operators are commonly reducing that variance to less than 2%. A growing number of DEX operators report reducing cash variances to 1% and less. DEX cash provides exactly the amount of bills in the acceptor and the coin dropped to the collection box. driver change fund reconciliation is improved, because the coin replenished to the coin-mech's tubes by the driver, is reconciled to the actual coin-mech's activity. DEX Cash Audit challenges the notion that average cash shrinkage of a \$1.00, per machine service is acceptable. Of course, if cash variances are already **maintainable** at 1.5% or less, DEX lowers the administrative and management cost to maintain the process.

DEX Column Control Impact: When plugged into a machine, the HHC literally "counts the machine down" and builds the fill order/pick-list by matching each column's DEX metered vends to its correct corresponding product. Automatic DEX "machine count down" and capture of meter readings lowers driver input requirements and errors. DEX column sales data operators report average service time **savings of 2 minutes per can\bottle, 3 minutes per snack and 1 minute per cup-drink machine. . . reducing total machine service time by at least an hour per route day!** A time-savings of this magnitude could be used to service more machines, shorten the route day, or improve customer relations. Knowing "what's really selling" supports the confidence to **reduce** truck and warehouse **inventories**.

DEX route retrofit & certification cost: Within the vending universe, **46% of existing machines, on average, are DEX-capable**. Assuming 85 machines per route, **40 machines** will be DEX-capable, **45 will not**. inOne provides a patented kit to upgrade non-DEX-capable machines to full DEX-status. Non DEX-capable Snack, Can and Bottle machines need both column and DEX cash capability, so their DEX upgrade kits average \$160 each. Non DEX-capable Cold Food, Hot & Cold Cup machine upgrade kits average \$125 each. Full DEX certification and **retrofit averages \$7,200 per route, assuming 85 machines and 54% (46) are Non-DEX-capable**.

Typically DEX utilization is deployed in 2 phases: DEX-Cash then DEX-Column.

DEX CASH ROI: For the Route ROI analysis, we **add** average cost OF HH at **\$2000** to the per route DEX cost of **\$7,200**, plus **\$500** for the technician's setup **LABOR**, which **totals \$9,700** per route. Now, let's use NAMA's average route's annual sales of **\$350,000**. With those numbers, a route ROI would be ($350k \text{ sales} \times 3\% \text{ more cash} = \underline{\$10,500}$), ($10,500 - 9,700 = \$800$ or **8% ROI within the first year**). **NOTE: The cost of the Handheld at this phase can be postponed with DEX Cash data readers for \$450. It would however, require continuance of using paper tickets for recording fills, inventory and cash bag identification.**

DEX Column ROI: The route ROI is still (\$350k sales X **10%** avg. sales increase = **\$35,000**) **\$35,000 X 55% Gross Margin = \$19,250** in increased gross profit per route. A more aggressive ROI could be argued based on the premise that when sales increase while costs decrease, a route's net profit nearly doubles! The "peace of mind" that comes from tamper-proof cash reconciliation and highly improved inventory control is difficult to quantify, but certainly also has value.

Few machines, except with MDB, record **ACTIVITY\ERROR** codes, but when available, they may include coin\bill jams, door opening, temperature variances and compressor activity. Without MDB, the manufacturers' error codes are undocumented and inconsistent, and are generally ignored by the vending technology providers. MDB (Multi-Drop Bus) machines provide reasonably consistent error reporting. Activity\Error reporting is an important DEX function because a large portion of the customer service benefit is knowing the machine has a problem before they do. Wireless vending relies heavily on the timely reporting of activity and errors.

CAUTIONS: Where can DEX utilization fail? The technology can fail primarily at the same point all route automation is subject to failure . . .with the driver. When a driver is directed by "the system" to refill a column with 10 Lays BBQ Chips, but he puts in 8 and doesn't record that change, the technology fails. Without motivated drivers and focused route supervision, even paper-based systems fail expectations. Successful column level DEX relies on managed product rotation and plan-o-gram adoption. Deployment requires top-down commitment and consistent ongoing maintenance to be truly effective.

What is Remote Monitoring\Wireless Vending?

Remote Monitoring\ Wireless is to Vending what preorder is to Pepsi and Coke. Knowing today what your customers and machines need tomorrow dramatically increases a route's service capacity. When adopted, pre-order selling enabled Pepsi and Coke's routes to nearly double the stops per day. Remotely "harvesting" a machine's spiral turns to the warehouse is used to produce pre-orders "fill orders" by matching the DEX spiral turns to the product assigned to the spiral. Picking machine fill orders in the warehouse eliminates the driver's picking time, trip back to the truck and reduces truck capacity. Cans and bottles are still loaded by the case. If fill orders are not pre-packed in the warehouse, they are used by the driver to pick from the truck, before entering the location. Dynamic Scheduling "DS" can be employed to determine tomorrow's machine service schedules based on product depletion targets, which can eliminate needless over-services. DS overrides the static service schedule if a machine does not qualify for service, based on its depletion target. Depletion targets average around 50% for can\bottle, and 30% for snack.

What are the Types of Wireless\Remote Vending Technology?:

1. Remote Cellular: Usually 1 machine in a bank\cluster of machines has as a master cellular modem and monitoring device. IT gathers the DEX data from any "slave" machines within a 1000-yard radius. Readings can be "called-in" hourly, or at user-defined intervals. The national wireless carriers are just beginning to include "small packet data switching" within their business models. Cellular is cost effective where locations are unusually remote from the every-day base route line, and where service requirements are harder to predict. Usually some recurring monthly service fees are involved.

2. Remote Local Land Line: Very similar to Cellular, but requires a local phone line access by each machine or the master DEX data collection device. If Location's FAX line is available, the master can usually transmit the readings to another device mounted between the fax machine and the telephone wall jack. Phone charges are possible here also, but less than cellular. Location permission is sometimes a barrier. Monthly service fees probably here too.

3. Remote Wide Area Network: Here the master is a transmitter, like a home-based wireless phone, but it can transmit and receive for 3-10 miles, depending on topography. It constantly searches for other slaves and masters for the sole purpose of relaying DEX data. If there is no local Internet connection, the master will pass its accumulated reading to the next master between it and the vending operator's warehouse. The warehouse would have a 15 to 25ft. antennae.

NOTE: Each of the above REMOTE options support CASHLESS vending.

4. Curbside Wireless Vending: Harvests DEX spiral turn data to a truck based receiver when the truck is within Location proximity. Some have truck-based picking ticket printers and/or feed the DEX to the driver's HHC. Like Remote options, curbside polling eliminates the trip back to the truck. It doesn't support warehouse "fill-orders" or Dynamic Scheduling without intensive forecasting technology. Curbside polling is typically ideal for daily, unpredictable machines. It does not usually require monthly fees be paid to maintain each machine "within the network", therefore the least expensive polling option.

SUMMARY: Clearly the potential savings and positive sales effects are worth every operator's consideration, regardless of the DEX utilization method. During the next 3 years, it will become more common to hear of vending operators maintaining sales volume with 30% fewer routes, Operators using HHCs can immediately begin DEX Cash Audit, and Column control with a little pre-planning. Those not on HHCs might consider them, or begin with Cash audit using just a DEX data gathering device like inOne's one- button "Pocket-Probe" for around \$450.

The largest vending operation in the USA has over 150,000 machines reporting DEX data. Because DEX usage is a highly effective selling tool, those operators not embracing DEX technology will eventually be competing against operators offering guaranteed commission accuracy and no-sellout satisfaction warranties.

Your comments or questions are welcome. You may reach us at 512-263-9603 or 800-426-1487 and through our websites at www.inOneTechnology.com. Please direct Email comments or questions to: BLockett@inOneTechnology.com.

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