



## Understanding smart cards

Have you ever sold a client on the need for readers and smart cards only to have them unsure of what to do with the cards after you've installed and connected all their hardware? If so, you're not alone. As smart cards grow in popularity—thanks to their many uses and long-term cost-savings—it's not uncommon for companies to tackle the issue of “who” and “how” to encode the cards.

“A smart card does not come out of the box ready to do everything it is capable of doing,” says Derek Hileman, Access Control Consultant. “Oftentimes, the client expects the integrator to encode the cards, but the reality is that architecting a smart card is a specialty area of integration. The integrator who installs your hardware is not always the same one who can encode your cards. These are two different and distinct skill sets.”

Hileman likens a system integrator to a general practitioner and a card integrator to a specialty physician. And the latter, he says, is a young, but growing specialty among integrators.

If that specialty doesn't exist within your integration firm, Hileman recommends forming partnerships and alliances in order to successfully service a client's comprehensive security needs.

Matt McDaniel, Chief Executive Officer with Multicard, a full-service identification and security integrator, says the planning of card encoding starts well before the actual process of it.

“Before you can encode cards—let alone select the type of smart card—you must first go through a thoughtful process that evaluates how the cards will be used, whether that's access control, vending or printing, etc.,” says McDaniel. “Then you have to figure out what needs to happen on the back end to allow the various transactions, as well as how the transactions will be managed on an ongoing basis.”

To get to this point, he takes clients through five questions:

- 1 What do you want to use the card for?** A single smart card can be used for multiple applications like enrollment, access control, data storage, cashless vending, public transit and more. Smart cards can help consolidate services and provide greater convenience.
- 2 Who are the stakeholders?** Oftentimes, McDaniel says, clients think he's talking about who will use the cards. But the end users are not the stakeholders. Instead, the stakeholders are the departments, individuals or vendors who are involved in the administration and ongoing management of the smart cards.  
  
“Stakeholders may include the security department, IT, cafeteria management or campus transit service, for example,” he says. “And stakeholders may be internal or external.”  
  
A college, for example, may want to use the smart card for transit, which could involve campus shuttles as well as city transit buses. Or they may want to allow smart cards for resident hall vending machines, which are generally owned and operated by an external vendor.
- 3 What hardware and software currently exists?** Are there gaps? “This inventory helps us determine if there are any potential constraints, as well as existing platforms we need to merge or leverage,” McDaniel explains.

In the vending machine scenario, the integrator needs to examine if a card reader—and what kind of card reader—can be connected to the vending machine.



**4 What needs to happen behind the scenes (with software) to enable the transaction?** Again, in the case of the vending machine, it will need to be determined what ID number will track the transaction and if that ID number is already on cards or used for other transactions. Plus, how will all this be processed on the back end to tie into payroll or student billing?

The answers to the first four questions drive the selection of the smart card. "All of this information helps us determine what kind of card technology is best suited for the desired uses," McDaniel says.

Because smart cards can—and should—be used for multiple transactions, these questions must be answered for each desired transaction before coming to a decision. Often, given the scope of a plan, it may also include a transition plan that allows an organization to fully move to smart cards in phases, over a period of time.

After the card is selected the final question can be addressed:

**5 How do you want to encode the card?** The final step is writing to that card and entering it into the various systems. Cards can either come pre-encoded from the factory, or companies can choose to manage their own card issuances (with or without the help of an integrator like Multicard).

The advantage of pre-encoded cards is that you don't have to manage all the encryption keys—it is all done for you. However, you can lose some of the behind-the-scenes flexibility. When companies issue their own cards, they develop the key ceremony in order to maintain total control and flexibility.

### Eye on the prize

With so many technical details to work through, the entire process can take 12 to 18 months to implement. While arduous, McDaniel says companies are motivated to go through the process and implement smart cards because of their many benefits.

"The bottom line is that a smart card is like having a computer chip on a card," says McDaniel, "so even when customers may feel like the process is long and cumbersome, they stay the course because they realize the significant advantage of using a card with massive data storage. Smart cards allow organizations to enhance security, reduce fraud, consolidate services and save money over the long run. They are more than worth the time investment upfront to fully maximize their functionality."

### Why architecting the card is important

Clearly, no one understands access control and credentialing as well as integrators. But as the credential is used for more and more transactions beyond access control—such as vending, transit and logical identification, for example—the encoding process will require more forethought and expertise on how to integrate credentials with back-end software, financial/billing programs, ID systems, vendors and more. Industry experts expect the trend of using credentials for multiple transactions to continue in an upward direction, gaining more traction in the next three to five years.

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