IBM

IC One deals a smart card for the next generation of e-business.

Application	Smart card system for loyalty, cause marketing and other applications
Business Benefits	Hundreds of dollars of donations per school with no fund-raising effort; convenient, low-risk cause and loyalty program for merchants ($12,500 in donations resulting from $450,000 in sales during pilot); pivotal position in smart card industry for IC One
Software	IBM® Open Smart Card Architecture IBM DB2® Universal Database™
Services	IBM Global Services, IBM Global Smart Card Solutions

Where can you find a fund-raising program that requires no fundraisers, a customer loyalty program that guarantees patronage for every dollar invested and a convenient and secure new method of electronic commerce? They're all on a smart card from IC One.

> *"IBM is one of the key factors in developing this secure multiple application environment for smart cards."*
>
> *– Jim Biorge, CEO, IC One*

Through the pioneering work of Salt Lake City-based IC One Inc. and partners including IBM, smart cards are now evolving from simple electronic identification and payment instruments to enablers of a wide range of e-business applications. Similar in size to credit cards, smart cards use an embedded microprocessor, instead of a magnetic strip, to store information. Unlike the magnetic strip, however, the thumbnail-sized processor in a smart card can contain not only data, but also complete applications. IBM smart card technology provides comprehensive smart card holder verification and authenticates smart cards using cryptographic key

Powered by an architecture developed by IBM, this little card puts e-business in everyone's pocket.

ℓ™
e-business

IC One's Web site shows how smart cards are shaping our future.

"When a school, bank or merchant decides to join with us, they should be able to use whatever smart card they want. The IBM Open Smart Card Architecture allows us to do this."

– David Abplanalp, Senior Vice President of Operations, IC One

technology. This makes the smart card both highly versatile and safe for industrial and commercial applications.

Industry analysts, who envision a world in which consumers can use a single card for communications, financial, insurance, debit/credit and loyalty programs, predict a rosy future for smart cards. The Wall Street Journal estimates that the smart card market will top $3.5 billion by 2002, with adoption expanding out from Europe and Asia into the U.S. Consulting firm Frost & Sullivan expects nearly 2 billion smart cards to be shipped worldwide in 2000, double the number shipped in 1997.

Positioning itself to capitalize on this trend, IC One has begun to prove its smart card concept in Utah with the IC Kids Card, a smart card-based loyalty and cause marketing (fund-raising) program that provides contributions to schools and children's hospitals. When IC Kids Card holders present the card while making purchases at participating merchants, the merchants contribute a percentage of proceeds from the sale to the cardholders' schools of choice as well as to children's hospitals.

To implement the program, IC One joined forces with IBM Global Services and IBM Global Smart Card Solutions. Together, they developed a complete solution based on the IBM Open Smart Card Architecture, supported by a robust back-end data management system powered by IBM DB2 Universal Database.

Once a prototype application was in place, IC One tested the card with 40 merchants and 2,500 cardholders in 2 isolated districts in Cache County, Utah. Even though the test bed presented difficult conditions – a geographically dispersed region and low per capita income – the results were outstanding. "In 19 weeks, 13,800 transactions, worth a total of $450,000, were made with the IC Kids Card," reports Doug Lloyd, IC One's executive vice president of marketing. "The resulting merchant contribution to the schools was $12,500. All this was done during the summer, without any fund-raising effort on the part of school principals, teachers, students or parents."

Full rollout has begun in Cache County, where there are already 2,500 additional card applicants. IC One projects that close to 10,000 cards will be issued in the next 6 months in the county, with 200 to 250 merchants signing up for the program. Statewide rollout is planned for the end of 1998, with introduction in other states beginning in 1999.

But this 17-employee company has even grander plans. The education loyalty program is just the first of many applications that IC One plans to enable on its smart card. In fact, the whole idea is to create a standard, open platform for smart card transactions that can accommodate any application using any smart card and any smart card reader.

"IBM is one of the key factors in developing this secure multiple application environment for smart cards," says IC One CEO James Biorge. This environment, Biorge claims, together with IC One's investment in e-business and the DB2 data management system, will place the company in the position of becoming a major provider of transaction processing services to the burgeoning smart card industry.

Smart card proves efficient vehicle for loyalty and fundraising

Compared to traditional loyalty and cause marketing programs, an e-business solution such as the IC Kids Card is a giant leap forward in cost-performance for merchants, schools, students and their families. For schools, it's a very easy way to generate much-needed funds. "Schools are trying to get away from door-to-door fundraising, which has been a necessary, but often unrewarding venture in the past," Lloyd explains, "One school in Utah sold $5,550 worth of chocolate, but ended up with net proceeds of only $200 after deducting administrative costs." In contrast, during the trial period alone, schools in Cache County each received between $300 to $1,000, without spending a dime and without sending kids out to solicit donations. By the end of 1998, IC One expects to double the number of cardholders in Cache County and add several major retailers to the program, which will significantly boost the schools' earnings.

For merchants, who are inundated with solicitations from multiple fund-raising organizations, the card provides one channel for donations, which benefits all the schools their customers care about. And, even as they enhance their image as good citizens in the community, merchants are also increasing revenues and securing a loyal clientele. Unlike loyalty programs fueled by advertising and promotions, the IC Kids Card is a low-risk way to boost customer patronage, because merchants make donations only when cardholders make purchases. Furthermore, it costs merchants less to manage the smart card-based program than traditional loyalty programs, which require a great deal of paperwork.

IBM system offers flexibility and security

IBM assisted IC One in defining the business model for the IC Kids Card program, including the various potential uses for the card. Together, IC One and IBM developed the prototype application, which was used in the Cache County pilot program. IBM helped develop the software for the "electronic purses," which store cash equivalents on the card, as well as the authorization and security software that resides on the smart card terminal.

At the heart of IC One's smart card system is the IBM Open Smart Card Architecture, a layer of software residing in the smart card terminal that translates the terminal application requests into commands specific to the smart card being used. The architecture is critical in enabling IC One to align itself with a wide range of smart card issuers, whose cards may be based on different operating systems.

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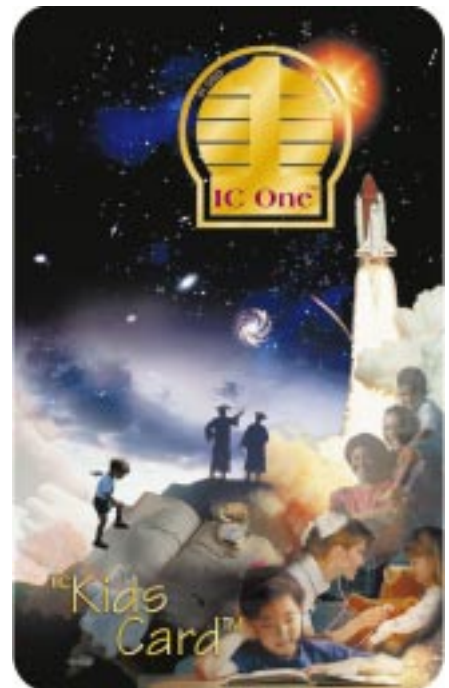
A computer on a card: the IC One Kids Card.

"When a school, bank or merchant decides to join with us, they should be able to use whatever smart card they want," explains IC One Senior Vice President of Operations David Abplanalp. "The IBM Open Smart Card Architecture allows us to do this."

When an IC Kids Card is presented at the point of sale, it is read by the smart card terminal. The transactions are stored in the terminal's memory until the end of the day, when they are uploaded over dial-up links to a server residing at IC One's facilities in Salt Lake City. IBM DB2 Universal Database stores the details of each transaction on this server, and these records are used as a basis for distributing funds to the various recipients.

Based on the information in the DB2 database, IC One also generates reports to merchants, enabling them to track their contributions and the returns they have achieved by participating in the program. "We anticipate that this will migrate to an Internet-based reporting application, where the merchants would log on to the IC One Web site to generate reports whenever they need them," Abplanalp notes.

The future of education and commerce is in the cards

Beyond the IC Kids Card project, IBM and IC One are working to enhance their open architecture for multiapplication smart card systems. Advancing this effort, IBM is leading the OpenCard Industry consortium, which is defining the Open Card Framework, a common smart card interface based on Java™ technology. "We're looking to IBM to assist in adapting our smart card system for universal acceptance through the use of Java-based platforms, which will allow a broad range of smart card applications – such as mass transit, telecommunication, loyalty and stored value – to come together on one card," Abplanalp notes.

Already, IC One is lining up some promising home banking applications. Banks partnering with IC One would be able to issue their own cards, and use their own stored value purses, such as Visa Cash or Mondex, together with IC One's loyalty purse on the same card. The transaction settlements would be handled by IC One's DB2-based smart card processing system.

"The work we've done on this project creates a solid basis to have anyone running loyalty and incentive programs drive them through the processing engine developed by IC One and IBM," Biorge says. "By combining the transactions, we can achieve economies of scale that make it considerably more attractive for vendors to use this system than to develop their own smart card platforms. And a common platform is what the smart card industry sorely needs."