

The other proposals in this chapter deal with large-scale issues—college admissions procedures, airport security, and school violence, to name a few. While there is a lot to be learned from these proposals and the strategies their writers employ, your proposal will likely have a more limited scope, as in the following proposal written by a Rensselaer Polytechnic Institute student, Max Zujewski. Max wrote this proposal for a college writing course. In it he proposes a solution to a problem that he and other students frequently encounter on campus—their difficulty finding enough coins to operate washing machines in their dormitory. One obvious solution to this problem would be to install more change machines in campus laundry rooms. But as you will see, Zujewski takes a comprehensive approach to the problem.

Max Zujewski

## Making the Most of the Rensselaer Advantage Card: Plan for Finishing the Original RAC Project

Seven years ago, a very beneficial project for the faculty, staff, and students of Rensselaer Polytechnic Institute was started. The Rensselaer Advantage Card, or student ID project, was a success for both the staff of RPI and for the students. Not only did the student ID card generate more profits for Rensselaer and make student dorms more accessible and safe, but it also propelled RPI to the forefront of student ID card technology. 1

Yet the Rensselaer Advantage Card project has been left only half complete. Today it sits as a listing on only a single section of a single Web page entitled “Details of Historical Projects.” Point eight of this listing states that the Rensselaer Advantage Card’s future uses will be for banking applications, credit and debit functions, vending machines, and laundry services. It has been seven years since the inception of the Rensselaer Advantage Card project, but none of these features is yet available on campus. 2

Other colleges and universities across the nation are literally cashing in on self-supporting smart card systems, which not only create profit, but also expand student convenience drastically when compared to the magnetic stripe card systems such as the one currently in use at RPI. The University of Arizona's CatCard incorporates chip technology that allows students to make small payments at the campus bookstore, parking garage, and unattended locations such as vending and laundry machine areas. The card's chip is also accepted by ten different on-campus vendors. Currently the CatCard system has processed over \$1 million in transactions. Another amazing example is Texas A&M's smart card system. Students can use the Aggie Bucks on their ID cards to buy items from "the bookstore, vending machines and snack bars on campus, as well as an ever-increasing number of off-campus retail locations" ("Case Study"). The school has reported annual sales of over \$12 million dollars.

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The added conveniences, profit potentials, and technological innovations of the smart card have made the fact that Rensselaer's ID card system is needlessly out of date impossible to ignore.

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**Problem**

Several years ago, the high costs of purchasing new ID card technologies forced RPI to place the Rensselaer Advantage Project on the back burner. But today those same technologies are less expensive, more versatile, and more functional, and RPI is at the back of the pack in ID card technology rather than at the forefront. Students don't even have the convenience of using their ID cards at vending or copy machines—options that students at other schools have had for years. For these reasons, the Rensselaer Advantage Card just isn't giving Rensselaer students very much of an advantage.

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The list of colleges and universities with new ID card services has been growing by leaps and bounds. Campus polls show that these new services are indeed beneficial to the students as well. At Northeastern University in Boston, student ID cards can be programmed as debit cards that allow students to withdraw cash from bank accounts; the cards can also be used to obtain "discounts on

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rail tickets, shoes, sandwiches, and other goods and services” on and near the campus (Ackerman F1).

The Yale identification card, a smart card introduced in 1999, was recognized by the executive director of Yale’s Student Financial and Administrative Systems as “one of the most technically sophisticated among universities and corporations” (Bialik). The DukeCard was implemented as early as 1985, and by 1988 the magnetic stripe card system could be used for vending and laundry services. Today, the DukeCard system has been updated to a smart card system, and, as student Emmanuel Chang notes in response to an on-campus poll, the card “basically ends up being your life” (Bialik). According to the poll:

Today, the DukeCard is used for nearly every on-campus transaction. . . . [S]tudents can put as much money into their food accounts as they wish, and then spend that money on any food item, including candy bars from vending machines and pizzas delivered from the local Domino’s. [For] copying, laundry, or buying computer supplies from the university store, the money is deducted from their non-food account. (Bialik)

With factors such as profitability, convenience, and the conquest of staying on the ID card technology forefront, there shouldn’t be any reason why the Rensselaer Advantage Card project should go unfinished. With a few clear-cut steps, the project can be placed back on the table and RPI restored to the forefront of ID card technologies.

### **Solution**

The solution to turning the outdated Rensselaer Advantage Card system into an up-to-date, profitable, and more convenient ID card system lies in purchasing a new smart card system. The cost of new ID card technologies has been declining steadily for the past five years. The lower cost means that real profits and added student conveniences can now be obtained from a system upgrade. In addition, a little background on the history of smart card technology clearly shows why the time is right to purchase a smart card system.

ID card technologies of the past were not cost-effective, as can be seen by looking at the cost of a single card reader unit and the cost of an individual plastic smart card. In 1998, a single smart card reader cost between \$1,000 and \$4,000 (Christie). According to Dave Wamback, manager of Harvard's Identification and Data Services in 1998, "an ID card with an embedded computer chip would cost approximately \$15, and right now, that's not cost-effective." Wamback also recognizes the potential of the smart cards, adding: "When banking goes to smart cards, and costs go down, I can see a lot of people going to smart cards" (qtd. in Bialik). 10

Today the same smart card that was not cost-effective to implement has dropped in price dramatically. A recent article in the online business magazine *Enterprise Kentucky* states, "At one time, a smart card cost ten dollars [or more] to produce. The per unit cost is now approaching \$3.50 or less" ("Magnetic Stripe Card"). Administrators at the University of Colorado at Boulder acknowledge the cost-effectiveness of today's ID technologies. As the housing ID card manager noted, a new card system is "a daunting expense, so it will have to come in phases." Nevertheless, Susan Dorsey of the ID Projects Team stated that "in the long run, this card is going to generate revenue through long-distance calling and increased use in the vending machines" (qtd. in Christie). 11

With that said, it is proposed that Rensselaer purchase the Diebold CS Gold system for its campus. The Diebold card system is a two-part system. The first part is the hardware part, which provides plastic smart cards and card readers for various applications across campus. The second part is the software part, which provides a central database and software for specific-use card readers. According to the Diebold Web site, the Diebold CS Gold system provides the following advantages: 12

- Access control
- Alarm monitoring
- Copy machine charges

- Credit/debit functions
- Guest meals and shopping
- Laundry services
- Library checkout
- Off-campus merchant access
- Vending

Along with the hardware and software, Diebold offers an annual support contract with help available twenty-four hours a day (Diebold). Under this support contract, Diebold will provide all service and installation and a full warranty on all Diebold products for the life of the contract. In addition, the manufacturer will replace broken and malfunctioning parts of the CS Gold system within twenty-four hours of receiving a service request. Clearly, Diebold's system covers what Rensselaer needs to update its system and to keep it up-to-date in the future. 13

Some may argue that there must be a cheaper alternative for creating profit and adding student convenience to on-campus facilities. The fact is that there isn't a cheaper alternative that would create as much profit or as much convenience. Furthermore, any alternative besides upgrading the ID card system would still leave the Rensselaer Advantage Card project unfinished and leave RPI at the bottom of the ID card technology world. 14

To make the point about alternatives stick, it's best to examine a couple and discover their particular flaws. The first alternative would be to add more change machines on campus. Change machines would allow students to get quarters for laundry and vending services quickly and would be available twenty-four hours a day. The problem with this is that these change machines must be restocked often, which in turn means someone has to be paid to do the job. Another problem is that most on-campus students don't carry money with them, and if they do, would prefer not to carry around change. As an obvious example, it would be much more convenient to carry around a card with \$22.58 on it than to carry around "a ten-dollar bill, two five-dollar bills, two one-dollar bills, a quarter, 15

two dimes, two nickels, and three pennies" ("Magnetic"). This first alternative also doesn't address the issue of technology: No technological advancements would be gained.

A second alternative would be to stick with the current magnetic stripe card system at RPI and just upgrade the cards to handle the new types of transactions occurring on campus. To do this, a new system would have to be implemented. One of these systems is the AT&T Optim9000 magnetic stripe system, which is compared to the Diebold CS Gold system here:

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• **Diebold CS Gold**

- Multiple card types supported
  - Smart cards
  - Magnetic stripe cards
  - Barcode cards
- Ability to integrate with proven software packages
  - Oracle
  - Windows NT
  - Crystal Reports

• **AT&T Optim9000**

- Only one card type supported
  - Magnetic stripe
- Ability to integrate only with Oracle software package

The problem with the AT&T system is that it doesn't have the capability of upgrading to smart cards in the future, and it doesn't easily integrate with multiple proven computer technology platforms (AT&T). Why are smart cards preferable to magnetic stripe cards? Smart cards hold more information on the card itself. A typical magnetic stripe card can hold only about 1KB of information, but a smart card can hold megabytes of information. Even if the central database goes down, transactions can still occur and be updated on the central database later. Smart cards are also faster than magnetic stripe cards, since each card reader and each card itself contains a microprocessor, which lowers transaction completion times. Finally, smart cards are safer.

It may be thought that this new smart card service just can't be safe; that a card is much easier to lose than money and that because it uses a microprocessor to store information, a card has a real value—in other words, if the card is lost then so is the money. In today's world this is undeniably false. Smart card systems can use a central computer system for total redundancy and reliability. Once a smart card is swiped, the amount is deducted from the student's account information, which is stored locally on the card and on a remote computer. Therefore, if a card is reported lost or stolen, it can be immediately deactivated and a new card can easily be issued. The contents of the card are placed on a new card from the old card's redundant information on the central computer system. The latest technologies also include the option for having a PIN (personal identification number) associated with each smart card. Just as with a debit or ATM card, the person who owns the card must enter his or her PIN number before any transaction can take place ("Magnetic"). This gives an added level of security for the user. 17

The implementation of this proposed solution is straightforward. The ID card services director at Rensselaer needs to fill out a Request for Proposal (RFP) for a Diebold CS Gold system and send it to Diebold sometime in the spring. Diebold will examine the RFP and send back an actual proposal to implement a new smart card system, along with pertinent pricing information. If the proposal from Diebold is accepted by RPI, then implementation would begin in the summer to minimize the impact on students. 18

This may seem a huge and expensive task to undertake, but it isn't as big or as expensive as one might think. Diebold fills out the RFP almost completely beforehand. The only things the ID card services director needs to do are review the RFP, add or subtract items from the proposal to suit Rensselaer's needs, and attach pertinent information about the current ID and meal plan structure at RPI. Once the RFP is completed and Diebold's proposal is accepted, Diebold takes over most of the work. Diebold will install the system and set up training sessions to train on-campus employees to run the 19

system. Finally, each smart card will cost no more than \$3.50, which can be attached to a student's activity fee at the beginning of his or her freshman year. As for the expense to RPI, it will be a daunting one at first, as directors of ID card services commonly know. Yet numerous schools across the nation—such as Yale, Harvard, Duke, Penn State, and the University of Colorado—have overcome this obstacle by phasing in the project over a couple of years. One summer, the central database could be put in place and dorm access readers changed. Then, during the school year, card readers could be placed on vending machines and laundry machines, which, by the way, will not need to be replaced since card readers can simply be attached to the current machines. By slowly implementing the new smart card system, Rensselaer can budget money efficiently and minimize inconvenience while the new system is being installed.

After looking at the alternatives and their benefits, it is easy to see why the Diebold CS Gold system is the right choice for Rensselaer. The benefits of upgrading the outdated ID card system at RPI far outweigh any initial overhead costs. Selecting this smart card system establishes a single point of contact with an ID card system vendor, making installation, equipment sales, and repairs easier to facilitate. In addition, new ID card system services can be phased in and the extra profits created by the increased system usage will offset the initial cost of implementing these new ID card services. The increased system usage will not only boost profits for Rensselaer, but will boost profits for all vendors on campus. Finally, in addition to increased sales, students will be able to use their ID cards to buy food, make copies, do their laundry, and check out books—all without having to carry around a fistful of change or multiple forms of credit. After all, the goal of the Rensselaer Advantage Card project was, and still is, to create a source of revenue for Rensselaer while making campus facilities more convenient for the students and staying at the forefront of ID card technologies ("Details"). It's time to finish the project, achieve those goals, and restore RPI to the forefront of yet another technological field.

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# Writing in a Visual Age

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