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1 INTRODUCTION

This Section presents an overview of the *Project EASI/ED (Easy Access for Students and Institutions/US Department of Education) Best Practices Study on Card Processing*. It provides the document purpose, approach taken, and an overview of the document organization.

1.1 Project EASI Overview

Project EASI is an effort by members of the postsecondary education community to define and implement a customer-focused “system” to support postsecondary education. The Project EASI vision encompasses the entire postsecondary education community and its current customers. This includes prospective students, families, students, borrowers, schools, lenders, secondary markets, servicers, guarantors, state agencies, ED, professional organizations, and external organizations that may wish to share appropriate information (e.g., employers, financial counselors). Project EASI/ED encompasses ED’s internal areas of responsibility as they relate to the overall vision, as well as ED’s interactions with the postsecondary education community.

1.2 Document Purpose

The purpose of this study is to determine whether private sector card processes can be leveraged to implement the envisioned Project EASI/ED origination, disbursement, and repayment processes.

To assess the feasibility of this, this document presents best practices for card processing including credit, debit, and charge cards. Specific case studies on the implementation of specialized card products are also documented.

The envisioned Project EASI/ED origination, disbursement, and, to a limited extent, repayment processes are then summarized.

Based upon the identified best practices and the envisioned Project EASI/ED processes, models are presented that illustrate how existing card processes and systems could be leveraged to deliver student financial assistance. These models were developed based upon the findings of research, interviews, and advice solicited from experts in card processing and financial aid. The models are not intended to provide the sole solutions. Rather, the purpose of the models is to show that private sector card processing can indeed be leveraged for the delivery of financial aid.

1.3 Approach

To develop the *Project EASI/ED Best Practices Study on Card Processing*, the team followed a structured, eight-step approach to study other organizations, to identify best practices, and to develop models for leveraging card processes and systems for the delivery of financial assistance.

1. Perform secondary research
2. Interview financial aid process experts
3. Identify subject matter experts
4. Conduct interviews with subject matter experts
5. Identify site visit locations
6. Conduct site visits
7. Analyze findings and select best practices
8. Develop models

These steps are described in more detail below.

1. Perform secondary research

The team gathered articles and other documents related to card processing in order to identify best practices. The articles and documents used to define the processes and systems used by organizations and individuals involved in card processing came from the major secondary sources listed below.

1. KnowledgeView, PricewaterhouseCoopers' (PwC) proprietary research service
2. Tower Group Research Database
3. Periodical clippings

2. Interview financial aid process experts

Three individuals who are knowledgeable in financial aid processes and who are seeking to implement commercial practices to delivery financial aid were interviewed. The purpose of these interviews was to solicit input for the models developed for this study.

The following individuals were interviewed.

1. Ms. Molly Hockman - Project EASI Coordinator, US Department of Education. Ms. Hockman has been involved with Project EASI since its inception. She is a proponent of leveraging commercial infrastructures to deliver financial aid and has developed models depicting how commercial processes can be implemented to deliver financial aid.
2. Mr. Larry Oxendine - Director, Guarantor and Lender Oversight Service (GLOS), US Department of Education. Mr. Oxendine is a proponent of implementing a card to improve the delivery of financial aid to students and to lessen the administrative burden on schools, fund sources, and others.

3. Ms. Roxie LaFever - Senior Manager, Higher Education Practice, KPMG Peat Marwick, LLP. Prior to joining KPMG, Ms. LaFever was the Director of Financial Aid for the University of Phoenix. She was also the project manager for the College Card, a private label card product developed by Southwestern Student Services.

3. Identify subject matter experts

After reviewing secondary sources, the team identified subject matter experts within PwC based on the depth of experience proven by their involvement in engagements related to card processes.

The following card processing subject matter experts were chosen for interviews.

1. Mr. Michael Hoelsing – a PwC senior manager. Prior to joining PwC, Mr. Hoelsing was the Director of Corporate Audits at a large third party card processor for 8 years.
2. Mr. Joseph Casey - a PwC principal consultant. Mr. Casey directs the Center for Electronic Business Solutions, sponsored by the PwC Washington Consulting Practice. The Center is responsible for providing strategic, advisory, and implementation support services to public (federal, state, and local) and private sector clients in the design, development, and implementation of electronic business solutions. Mr. Casey was deeply involved in providing technical expertise to the Electronic Benefits Transfer (EBT) Task Force and other PwC clients involved with EBT.

4. Conduct interviews with subject matter experts

During each interview, the team followed a detailed questionnaire to draw upon the subject matter expert's

experience on best practices in card processing. (See Appendix B for the interview scripts.) Each subject matter expert was interviewed once.

5. *Identify site visit locations*

To obtain best practices and to gain insight into the feasibility of leveraging existing card infrastructures and processes, the team identified site visits locations at world-class card related organizations. In addition, to gain insight into how an educational institution leveraged card processing, a university was chosen as a site visit location. The team identified three locations.

1. A large charge card organization
2. A large third party card processor
3. University of Florida (UF) in Gainesville, Florida

6. *Conduct site visits*

During each site visit, the team followed a detailed questionnaire covering specific topics to draw upon the organization's expertise. (See Appendix D for the UF site visit questionnaire.)

7. *Analyze findings and select best practices*

Upon completion of the secondary research, interviews, and site visits, the team analyzed the most apt materials and selected best practices to present in the document.

8. *Develop models*

Using the identified best practices and the envisioned Project EASI/ED processes as documented in the *Project EASI/ED Business Area Requirements Document (BARD)*, July 1, 1997, the team developed conceptual models that leverage existing

card infrastructures and processes for the delivery of student financial assistance.

1.4 Document Organization

The remainder of the *Project EASI/ED Best Practices Study on Card Processing* comprises the sections listed below.

- **Section 2. Card Processing.** Presents “as-is” card processing and documents best practices.
- **Section 3. Project EASI/ED Processes.** Provides a high-level overview of the Project EASI/ED origination, disbursement, and repayment processes.
- **Section 4. Models.** Presents models by which commercial card infrastructures and processes could potentially be leveraged for the delivery of financial aid.
- **Section 5. Summary.** Summarizes the potential benefits and limitations of implementing a financial aid card.
- **Appendix A. Acronyms.** Defines acronyms used in the document.
- **Appendix B. Subject Matter Expert Interview Scripts.** Interview templates used to conduct subject matter expert interviews.
- **Appendix C. Interview Notes.** Financial aid and subject matter experts interview notes.
- **Appendix D. Site Visit Questionnaire.** Provides the site visit questionnaire used for the UF site visit.
- **Appendix E. Site Visit Report.** Summarizes the UF site visit.
- **Appendix F. Bibliography.** Suggested reading and references.

2 CARD PROCESSING

This Section describes the current card process flows and identifies best practices related to card processing. This section comprises the following subsections.

- **Section 2.1 Types of Cards.** Describes the types of cards evaluated in this study.
- **Section 2.2 Parties Involved.** Describes the organizations and individuals involved in card processing.
- **Section 2.3 Card Processing Overview.** Presents a high-level overview of card processing.
- **Section 2.4 Account Establishment.** Describes the processes that establish card accounts and documents best practices.
- **Section 2.5 Transaction Processing.** Describes how card transactions are processed and documents best practices.
- **Section 2.6 Settlement.** Describes the settlement processes between card processing organizations and documents best practices.
- **Section 2.7 Payment Processing.** Describes the processes that apply payments to card accounts and documents best practices.
- **Section 2.8 Specialty Card Product Types.** Provides examples of specialty card product types offered by card issuing organizations.
- **Section 2.9 Case Studies.** Describes in detail two case studies where organizations developed and implemented card products for specific business purposes.

2.1 Types of Cards

For the purposes of this best practices study, four types of cards were determined to be relevant to the delivery of student financial assistance: bank credit cards, debit cards, retail or private label credit cards, and charge cards.

1. *Bank credit card.* These cards are issued by banks that are members of the Visa and MasterCard payment associations. These cards have revolving lines of credit. An example of a bank credit card is a Visa card issued by Chase Manhattan Bank.
2. *Debit card.* These cards, issued by banks that are members of the applicable debit card association, provide cardholders with electronic access to their demand deposit accounts (DDAs) at the banks. No credit is extended to the cardholder. An example of this card is an automated teller machine (ATM) card issued by Citibank.
3. *Retail or private label credit card.* These cards are credit cards issued for use at a specific merchant or a closed network of merchants. These cards include department store and gas cards. These cards generally operate on proprietary systems and formats and, thus, can be tailored to the issuers' needs. An example of this card is the Circuit City Credit Card, issued and only accepted by Circuit City stores.
4. *Charge card.* These cards are similar to credit cards but do not have a revolving credit. Cardholders are responsible for paying the entire monthly balance. An example of a charge card is an American Express card.

Smart, or chip, cards were not examined for this study. Smart cards are a relatively new technology and have not gained wide acceptance in the United States. As such, standards for

encoding and reading the cards are limited. In addition, the infrastructure to support smart cards on a wide scale basis does not currently exist. Until the market for smart cards matures and standards are established, it could be difficult to implement a chip card that could be used and accepted nationwide.

2.2 Parties Involved

A number of organizations and individuals are involved in traditional card processing. These parties are listed and described below.

- *Cardholder.* The individual who opens a card account and who uses the card for purchases and/or cash withdrawals. For credit and charge cards, the cardholder is responsible for repayment.
- *Issuing financial institution or issuer.* The financial institution that issues the card to the cardholder. For credit or charge cards, the issuing financial institution extends credit to the cardholder. For debit cards, the financial institution maintains the DDA for the cardholder and issues a debit card to allow the cardholder electronic access to the DDA.
- *Payment association.* The payment association comprises its member financial institutions. All card transactions flow through the association. It is also responsible for performing end-of-day reconciliation and settlement with the member financial institutions. The association develops and maintains the operating rules for transactions related to the card.
- *Merchant.* The merchant is the organization at which the cardholder uses the card for purchases (or the owner of the ATM at which the cardholder uses the card for cash withdrawals).

- *Acquiring financial institution or acquirer.* The acquiring financial institution maintains relationships with merchants. The merchants submit their card transactions to the acquiring bank for subsequent routing and settlement through the payment association.
- *Credit bureau.* These organizations provide the credit history of the applicant (cardholder) to the issuing financial institution.
- *Third party service providers.* These organizations provide processing services for issuing and/or acquiring financial institutions.

2.3 Card Processing Overview

This subsection provides a high-level overview of the commercial card processing flow.

Process Flow

The following narrative describes the high-level process flow depicted in Figure 2-1.

1. The cardholder applies for a card.
2. The issuing financial institution requests a credit check for the applicant. (This step is only taken for credit and charge cards. Most debit cards do not require a credit check to establish the actual card account. Some financial institutions may require a credit check when the cardholder opens an account at the bank to which the debit card relates.)
3. If the credit check is approved, the cardholder is issued a card.
4. Some issuers require the cardholder to contact them to activate the card.

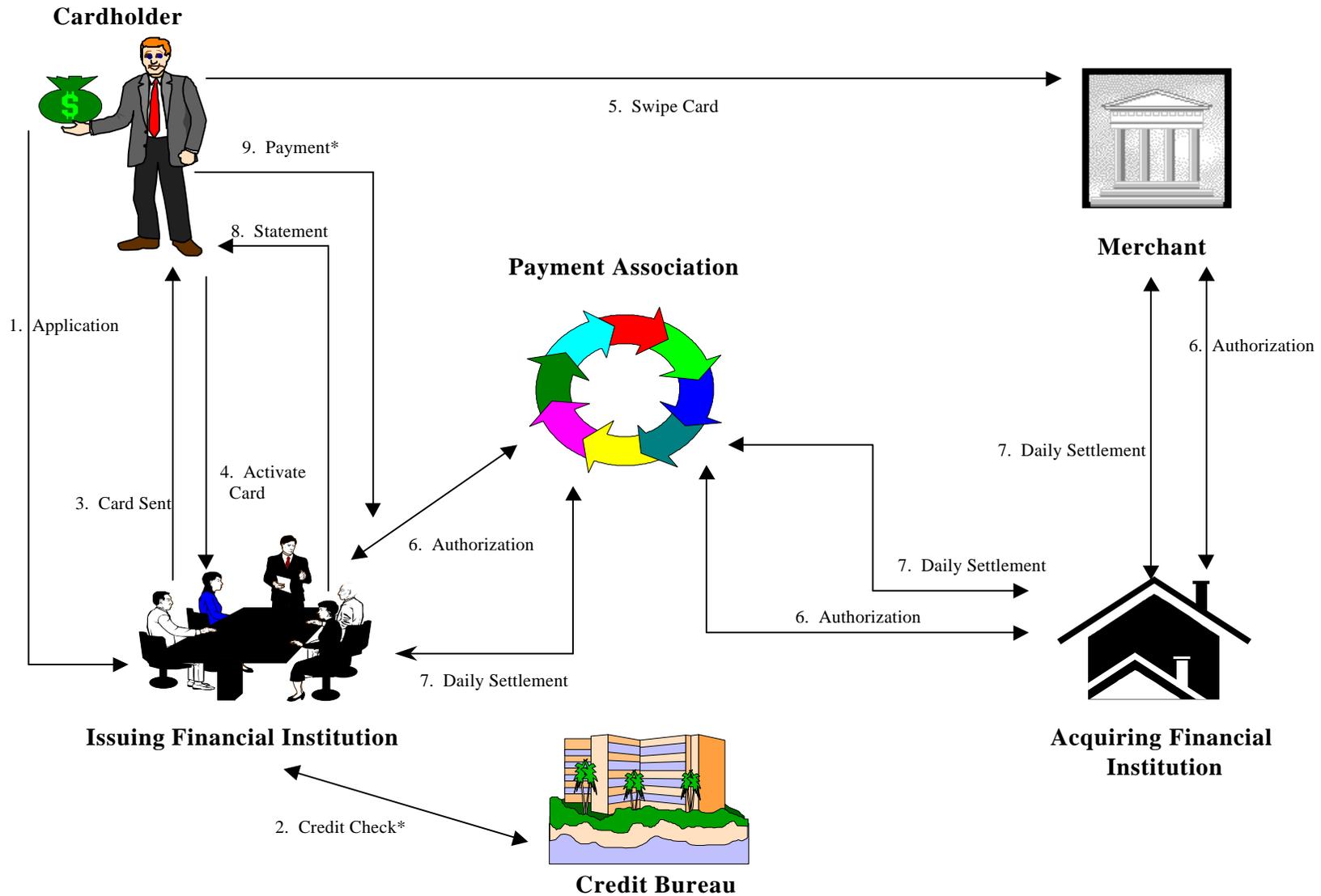


Figure 2-1 Overview of Card Processing

* Indicates that these processes do not occur in debit card processing.

5. Once activated, the cardholder can swipe the card at a point of sale (POS) terminal or ATM.
6. The POS or ATM transaction is forwarded from the POS terminal or ATM to the merchant's acquiring financial institution. The acquiring financial institution forwards the transaction for authorization through the payment association to the issuing financial institution. The issuing financial institution authorizes the transaction and sends the authorization back to the merchant through the payment association and the acquiring financial institution. (In the case of some charge cards, the charge card organization serves as the issuing financial institution, the acquiring financial institution, and the payment network.) Generally, this process takes approximately 3 to 5 seconds.
7. At the end of day, the merchant submits its daily transactions to its acquirer and is paid by the acquirer. The acquirer forwards the transactions to the payment association. The payment association then routes the transactions to the appropriate issuers. The payment association is responsible for determining the net settlement position of all issuers and acquirers that belong to the association. Based on their net position, the acquirers and issuers either pay or receive funds from the payment association.
8. The issuing financial institution provides a monthly statement to the cardholder, itemizing all of the transactions for that month (and any payments received for credit and charge cards).
9. If the card is a credit or charge card, the cardholder submits his/her payment to the issuing financial institution.

Subsections 2.4 – 2.7 provide a more detailed explanation of the card processing cycle.

2.4 Account Establishment

Credit/Charge Card Account Establishment

The first step in the card processing life cycle is the establishment of the cardholder account. For a credit or charge card, an application is submitted by the potential cardholder either on paper or electronically. Most consumer applications are paper based, although some issuers have developed web sites by which consumers may submit an application. For some corporate cards, the applications are sent electronically to the issuer, either in standard document formats (e.g., Microsoft Word, Excel) or via American Standards Code for Information Interchange (ASCII) file transfers.

Once the application is received, a credit decision must be made. The issuer establishes a passing credit score against which the application is evaluated. Credit history information is obtained from credit bureaus. The credit bureaus can calculate and provide the issuer with a credit score. Issuers can also choose to calculate their own credit scores based upon the credit history information received from the credit bureaus. If the credit score meets or exceeds the threshold, the applicant passes the credit evaluation.

The issuing bank then determines whether the application is fraudulent. The payment association maintains a fraud file that is continually updated by all issuing banks. The issuing bank verifies specific parameters, such as name and address, against this fraud file.

Once the application is approved, the issuer generates a card number and verifies with the payment association that the

number is unique. If all edits are passed, the issuer then enters the account into their systems.

The plastic card is then manufactured and mailed to the cardholder. Some issuers require the cardholder to activate the card by calling a toll free number and providing identifying information, such as a social security number (SSN), mother's maiden name, etc.

Debit Card Account Establishment

A debit card provides electronic access to a DDA. Therefore, a consumer would not specifically apply for a debit card but would apply for and open a DDA. The rigors and procedures of applying for a DDA vary between financial institutions.

The manner by which issuers establish the actual debit card accounts in their systems and with the payment association is generally the same as that followed for credit or charge cards.

Establishing Card Accounts with Multiple Sub-Accounts

Generally, debit and charge cards do not offer sophisticated mechanisms to differentiate a single card account into sub-accounts. Simple sub-account structures are possible, such as differentiating between cash advances and purchases for charge cards, or between checking and savings accounts for debit cards. EBT cards, which leverage debit card networks, offer sub-account capabilities, maintaining one sub-account for cash and one sub-account solely for the purchase of food stuffs.

Bank credit cards offer some flexibility for sub-accounts, or multiple balance segments, on one card account. Each balance segment can carry different terms, including varying interest rates, late fees, over limit fees, and repayment terms. For example, a co-branded credit card issued by a financial institution in partnership with a department store may allow

different terms and rewards for purchases. If the card is used for purchases at that department store, balances may be subject to a lower rate of interest than the balances incurred from other purchases. In addition, these purchases may earn the cardholder rewards, such as a percentage cash back for all purchases made at that department store.

Retail or private label credit cards offer the most flexibility in terms of multiple balances or sub-accounts. Since these are proprietary cards and systems, the issuers can dictate how accounts are established, including establishing multiple sub-accounts or balances within one card account.

Examples

Large Charge Card Organization

This charge card organization serves both as the issuer and acquirer for the cards it issues. Therefore, it maintains relationships with both the cardholders who use the card and merchants that accept the card.

Most applications for consumer cards are received in paper form. To establish a consumer account, certain banking and credit history information is necessary. This charge card organization depends on an internal credit reporting system and external, on-line credit reporting with credit bureaus for this information.

To establish a corporate account, the following information, at a minimum, is necessary.

- name
- business address and phone number
- personal address and phone number
- SSN

Corporate cards are issued to employees for business related expenses. The application for these cards can be submitted in various ways: paper applications from individual employees; a paper list generated by the company, which indicates all the employees for whom cards should be issued; electronic applications via common document formats such as Microsoft Excel or Word, via flat file/ASCII, or via mainframe file transfers.

The application process has three results.

1. *Type A:* The applicant passes the credit check with no problem.
2. *Type B:* The applicant passes the credit check but may represent some credit risk. Cardholders are placed on a flexible spending plan by which the account has a spending limit, limited number of transactions per month, limited use of the card to specific merchants, or other methods.
3. *Type C:* The application is denied.

Most cards sent to consumers are active when they are shipped. Cards sent to high fraud areas, however, require the consumer to activate the card by calling an 800 number. The charge card organization does not require activation for all cards because cardholders perceive this as a nuisance.

Large Third Party Card Processor

The third party processor provides issuing and acquiring banks with the systems and networks necessary to manage credit and debit card accounts. The banks, not the processor, are responsible for maintaining accounts.

Most banks choose to differentiate their issuing and acquiring operations into two completely separate business entities. The transaction processing and reconciliation between the

processor's issuing division and the issuing entity of the bank, and between the processor's acquiring division and the acquiring entity, are completely separate. A small number of the processor's client banks choose not to differentiate their issuing and acquiring operations. In these cases, both the issuing and acquiring divisions of the processor view the bank as one entity.

To establish an account, the cardholder name, address, SSN, and other data elements are necessary. The processor provides its issuing client banks with a system to perform credit evaluations. Within this system, the issuing financial institution enters the specific parameters against which the credit evaluation is performed, based upon its needs. The resultant credit scores are assessed and evaluated in another system offered by the processor. The passing credit scores can vary between the various product types offered by the issuing bank, e.g., one score for Visa Standard, another for Visa Gold, etc.

Once an application is processed and approved, the new account is loaded into the processor's systems. The processor then manufactures the card, if the issuing bank desires. The processor provides various options such as embossing or imaging the number on the card and encoding and loading the magnetic stripe. The processor then mails the card to the cardholder at a predetermined address. (Each account can support multiple addresses and the processor will ship the card to the cardholder's preferred address.)

Generally, banks follow the same processes to establish a debit card account in the processor's system as they follow for establishing a credit card account.

2.5 Transaction Processing

Credit/Charge Card Transaction Processing

The credit/charge card transaction process starts when the cardholder swipes the card at a merchant's POS terminal. The transaction is then sent by the POS terminal to the acquiring financial institution. The acquiring financial institution routes the transaction to the issuing financial institution, via the payment association, for authorization. If the acquiring financial institution is also the issuing financial institution, it will process the authorization itself. This type of transaction is commonly known as an "on-us" transaction.

When the issuing financial institution receives the transaction, it approves or declines the transaction based on the available balance on the cardholder's account. The issuing financial institution then sends the authorization result to the payment association, which routes the result to the acquiring financial institution. The acquiring financial institution then forwards the result to the merchant. The entire process generally takes from 3 to 5 seconds.

In the event that the transaction is a purchase return by the cardholder, the process would still follow the same flow, except that a transaction type code would indicate that it is a return transaction rather than a sales transaction.

For each credit card transaction submitted by the merchant, the merchant pays a "bundled" fee. The "bundled" fee typically comprises an interchange or discount fee, a processing fee, a communications fee, and an assessment fee. The interchange or discount fee is provided to the issuer and is usually a percentage of the transaction amount for credit and charge cards. The interchange fee is generally the largest of the fees. The processing and communication fees are usually fixed fees per

transaction and are provided to the acquirer. The assessment fee is a percentage of the transaction amount and is provided to the payment association. Generally, the acquirer is responsible for collecting the fees from the merchant and distributing them to the appropriate parties as part of the settlement process described in subsection 2.6.

Chargebacks occur when a transaction is disputed by the cardholder. The cardholder contacts the issuer to initiate the chargeback process. Each payment association establishes specific rules for chargeback processing, such as requiring the consumer to submit a written explanation to the issuing financial institution for the chargeback. The issuing financial institution determines what course of action should be taken and assigns a reason code for the chargeback. There are different levels of "seriousness" that require various processing steps. In some cases, the chargeback can be approved and processed immediately by the issuing financial institution, resulting in a credit to the cardholder's account. In other cases, a memo to the file is generated until the problem is resolved. In instances where merchant verification is necessary, the issuing financial institution transmits the chargeback to the acquiring financial institution through the payment association.

Debit Card Transaction Processing

There are two kinds of debit card transaction processing: on-line and off-line. The on-line debit card is directly connected to the issuing financial institution's DDA file through a debit card network. With the on-line card, a swipe at a POS terminal or ATM requires a Personal Identification Number (PIN) to be entered. This transaction goes directly to the issuing financial institution (or its processor) through the debit card network. Once routed to the issuing financial institution, the real-time available balance on the account is verified and, if approved, the

account balance is immediately debited for the amount of the transaction. The interchange fee for on-line debit card transactions is a fixed fee, ultimately paid by the merchant.

With an off-line card, the transaction is routed through a credit card payment association, such as Visa or MasterCard, using a batch update process, similar to a credit card transaction. The transaction is verified against a debit card authorization file that is updated several times per day by the issuing financial institutions. This update by the issuing financial institution also includes any debits or credits made to the account by the account holder by other means, e.g., checks cleared and deposits made. Since the payment association does not have direct access to the DDAs, the payment association relies upon the financial institution to provide it with the DDA authorization file. Off-line cards are generally more accepted by merchants than on-line cards because the on-line transaction requires the cardholder to enter a PIN, which is less convenient to both the merchant and cardholder. The interchange fee is usually a percentage of the transaction and is ultimately paid by the merchant, similar to the credit or charge card interchange or discount fee.

Transactions Against Sub-Accounts

For a card that contains multiple sub-accounts within the single card account, the issuer must know to which sub-account the transaction applies. Generally, there are two mechanisms by which these transactions are processed against sub-accounts.

One mechanism is that the merchant inputs a transaction code in the transaction file. Based upon the transaction code, the issuer knows to which sub-account the transaction should be applied. Specific transaction codes are generally used in private label card systems. Most credit, charge, and debit card networks do not allow custom transaction codes.

An alternative to the transaction code method to identify a transaction is the extraction of existing data elements in a transaction. This method is used for traditional credit, charge, and debit cards. In this method, the issuing financial institution looks for specific data elements within the transaction to identify the sub-account to which the transaction applies. For example, if the card allows for special interest rates for purchases at a specific merchant, the issuing financial institution could identify these transactions by isolating the merchant identification number (ID) on the incoming transaction. All transactions received from this merchant would be applied to the special sub-account.

Examples

Large Charge Card Organization

The charge card organization processes 22 million transactions per day. Three sub-processes are required for every transaction: authorization, payables, and receivables.

Authorization Process

1. The cardholder presents the card to the merchant.
2. The merchant submits the transaction for approval through a POS terminal, a cash register, or a Personal Computer (PC) to the charge card organization.
3. The transaction is approved at one of 34 gateways located throughout the world. The approval is transmitted to the merchant.
4. In a nightly batch process, merchants submit all daily transactions to a gateway. Transaction data is stored in the merchant's POS terminal, register, or PC. Each transaction contains, at a minimum, the following data.
 - merchant ID

- cardholder name
 - cardholder account number
 - transaction amount
 - transaction type
 - approval code
 - merchant zip code
 - sales tax information
5. The gateways are connected to a central system. Batches from the gateways are transmitted to the central system every 12 to 18 hours. The central system maintains information on every card transaction made around the globe. This centralized network allows for a single source of information to support customer service, administration, and financial back-office operations.

Payables Process

1. All transactions received by the central system are also submitted to an accounts payable system. The accounts payable system maintains payable information for subsequent disbursement from the charge card organization to the merchant.

Receivables Process

1. Once received at the central system, transactions are submitted to the an accounts receivable system. The purpose of the accounts receivable system is to maintain cardholder accounts for subsequent billing.
2. Both debit and credit transactions are accumulated in the system until the billing cycle date. For consumer accounts, the billing cycle is randomly assigned. For corporate accounts, the company chooses the billing date. On the

billing date, all the transactions are posted to the cardholder account for subsequent mailing of statements.

Merchant IDs

The charge card organization's merchant IDs are comprised of a series of identifying numbers. Included in the ID is Dun and Bradstreet's Standard Industry Classification (SIC) code. SIC codes identify the merchant's type of organization. In addition, the charge card organization has established its own code which further categorizes the merchant. For example, a SIC code may identify a merchant as a hotel. The proprietary code further categorizes the hotel into the gift shop, the business center, the front desk, etc.

Based on the merchant IDs, the charge card organization can limit the use of cards by type of merchants, specific merchants, or anywhere in between.

Discount Fees

Discount fees are the fees paid by the merchant to the charge card organization for every sales transaction. On average, the charge card organization charges 2.5% of the transaction amount, although the discount fee is negotiable. The charge card organization relies on these fees for a substantial portion of its revenue on its card products.

Large Third Party Processor

General Transaction Processing

All financial transactions enter through the processor's accounting system. Edits are performed to verify the accuracy of the data being received. Incoming transactions that pass these edits are forwarded to a cardholder processing system. The transactions are approved or rejected based upon the account information maintained by the issuing banks in the processor's systems, and the result is sent via the payment association to the acquirer and then forwarded to the merchant.

Transaction Processing Against Multiple Balance Segments

The processor maintains various "options sets" that allow its issuing clients to create and tailor accounts with separate balance segments. Using these options sets, issuing clients specify which data elements in a transaction should be used to determine how to process the transactions against the separate segments. For example, an account can be set up so that transactions from a specific department store are charged a lower interest rate than regular purchases. When the processor receives a transaction with that store's unique merchant identifier, the transaction is posted against the "special" balance segment of the card account.

In most cases, transactions against separate balance segments are identified based upon the option set parameters. However, in some cases, the issuing bank may require modifications to the actual file format, such as requiring merchants to include a special code identifying the balance segment. In these situations, the issuing bank must work with the merchants to ensure that the merchant adheres to the modified file formats.

2.6 Settlement

Depending on the size of the merchant, the reconciliation process can take place on a daily basis at the end of the day, multiple times throughout the day, or once every week. The process is initiated when the merchant submits its transactions for the chosen time period to its acquiring financial institution. Upon receiving the totals from the merchant, the acquiring financial institution usually pays the merchant the same day. The acquiring financial institution then submits the transactions to the payment association.

For transmissions processed before the predetermined daily cut-off time, the payment association pays the acquiring financial institution the following day, minus any chargebacks sent to, returns initiated by, or fees assessed to the acquirer. The payment association then submits the transactions to the appropriate issuing financial institutions and is reimbursed the following day.

The settlement process is a netting one. The payment association nets out all debits and credits for all acquirers and issuers for which they are processing transactions. The issuers and acquirers, based upon their settlement position, will pay or receive funds from the payment association.

The medium by which the merchant is paid by the acquirer can vary, usually related to the size of the merchant. The payment could be a monthly check for a small merchant, daily Automated Clearing House (ACH) payments for medium sized merchants, or a Fedwire payment for larger merchants. The payments between the payment association and the issuers and acquirers are usually made by Fedwire.

Examples

Large Charge Card Organization

The charge card organization pays 90 percent of its the merchants 3 days from the date of the transaction. However, this lag can vary from 1 to 7 days depending upon the agreement with the merchant.

The charge card organization pays merchants by a variety of ways but primarily by ACH. All fund transfers to merchants are performed by the charge card organization's systems and require very little human intervention. There are also a variety of ways by which merchants receive remittance information including: check stubs, an 820 Electronic Data Interchange (EDI) transaction set wrapped in a Corporate Trade Exchange (CTX) ACH payment, or through dial-up connections to the charge card organization.

Large Third Party Processor

All reconciliation between the payment associations, the processor, and the processor's clients is performed through a netting process with the payment association. Every morning, the processor receives a lump payment from the payment association that nets all the prior day's credits and debits for all of the processor's client banks. Detailed remittance information is also provided by the payment association. The processor then pays or receives money from its client banks based upon this remittance information.

Visa is developing a mandatory direct settlement process by which Visa directly reimburses and/or receives funds from banks, depending on their net settlement position, by-passing third party processors. MasterCard currently offers direct settlement

The processor maintains individual cardholder transactions for up to 12 months. The processor charges its clients based upon the amount of information stored on the banks' behalf. Therefore, banks may choose to store information only for a couple of months or for the entire 12 months. The processor maintains account level history information for 7 years. If necessary, issuing banks can download transaction level data and keep the data themselves should they require the data for longer than 12 months.

2.7 Payment Processing

Payment processing does not apply to debit cards because the card is related to a DDA, not to a loan. For credit and charge cards, cardholders are sent a statement from the issuing financial institution. The statement itemizes all sales transactions during the billing period and any payments received. The statements can be custom tailored by the issuer including having informational or marketing statements printed on the statement.

Upon receipt of the statement, the cardholder sends a payment to the issuing financial institution. All payments from cardholders are generally submitted to a specific post office box used solely for credit card payments.

Most issuing banks process their own remittance, usually leveraging existing lockbox capabilities of the bank. Payments are processed by clerks who encode the payments using an encoding machine. Typically, the encoded checks are then processed through a TRACE check reading machine that records the payment information to an electronic file. This file is used to balance against the encoding machine totals. Once everything is balanced, the file is sent to the division within the issuing bank responsible for payment processing or to a third party processor via tape, disk, or file transmission for

subsequent updating to the individual card accounts. In addition, if there is a small volume of payments cleared, the bank can key enter information into a terminal for transmittal to the bank card system.

Examples

Large Charge Card Organization

There are numerous ways by which payments for corporate accounts are processed. In most cases, the cardholder is directly billed and responsible for payment. For some corporations, the company is billed for all cardholder transactions. In some instances, the company is billed for payment, and the cardholder is sent a statement of transactions.

The charge card organization does not differentiate charges at the individual transaction level. This practice becomes important when there is a dispute. In cases where there is a dispute, the charge card organization must set aside the entire balance for the billing cycle until the dispute is resolved.

Large Third Party Processor

When issuing banks establish a credit card or private label card account, they also determine how payments are to be processed. For example, they set minimum payments and define how payments are applied to different balance segments on the account.

The issuing bank also designs the statement that is sent to cardholders. The processor provides banks with a blank template and allows the bank to design the statement to suit its needs. Some options include the ability to print public relations messages on the statements or to include inserts with the statements. The processor has also developed Internet systems

that allow for interactive cardholder access to account information.

2.8 Specialty Card Product Types

This subsection provides examples of the specialty card product types offered by card issuers.

Purchasing Cards

Purchasing cards, or procurement cards, are cards given to company employees, generally for the purpose of acquiring supplies. Purchasing cards greatly reduce the costs associated with the typical procurement process by eliminating paper based processes such as purchase order and invoice processing.

A company can effectively limit how purchasing cards are used by employees. For example, based upon SIC codes, the card can be limited to a certain classification of merchants, such as office supply stores. Additionally, purchasing limits can be established by individual card holder or by the entire company.

Some payment associations allow additional data to be carried on the transactions such as tax amounts, freight costs, quantity of items, or costs per item. For example, MasterCard allows an additional 135 bytes of information, referred to as the 635 addendum record. MasterCard maintains a set of data elements that can be inputted in this addendum record by the merchant. Visa and American Express have similar functionality, although the length of the addendum records vary.¹ This functionality does, however, require merchants to modify their POS terminals.

¹ "Purchasing Card Processing in the US", The Tower Group, March 31, 1996.

Statements can be rolled up or down to the appropriate level within the company and non-billing statements can also be provided to the cardholder.

Purchasing cards are offered by many payment associations and issuers including American Express, Visa, and MasterCard.

Large Charge Card Organization

In addition to the consumer and corporate cards discussed above, the charge card organization offers other specialized card products. Some of the products that may be of interest or applicable to the student card are listed below.

- *Co-branded cards.* These cards are co-sponsored by various organizations, such as airlines and hotels. In these cases, the co-branding company is responsible for marketing the cards. The charge card organization is responsible for the issuance and maintenance of the card accounts. Consumers generally earn some type of reward, such as frequent flier miles or credit towards hotel rooms, with each purchase made.
- *Affinity cards.* These cards display the name of an organization, such as a university, while the charge card organization is responsible for issuing and maintaining the card account. Typically, the organization receives remuneration for the use of its name. The benefit to the charge card organization is that cardholders may be willing to apply for the card based upon recognition of the organization's name.
- *Purchasing cards.* To implement purchasing cards, the charge card organization added some functionality to its card processes. For each transaction, additional identifying information was necessary, such as the employee's SSN or ID. This additional information

required modifications to the charge card organization's systems and to external systems such as POS terminals.

- *Network cards.* With these cards, the charge card organization allows banks to use its infrastructure. These cards are not available domestically because of anti-trust considerations.

Large Third Party Processor

This processor also offers co-branded, affinity, and purchasing cards. In addition, the processor offers retail or private label cards. The biggest advantage of a private label card is that, since it is a proprietary system, any desired functionality can be built into the program. The largest drawback is that the card only operates on a closed system.

Another Large Third Party Processor

This processor developed stored value cards for a national retailer and a large shipping organization. Cardholders purchase these cards at the retailer. Cardholders then swipe their cards at the merchant, and the transaction amount is debited from the card account on a central database. The benefit of a stored value card to the issuer is that consumers provide funds up-front, with consumption following. The float advantages could be great for the issuer. Generally, stored value cards are on a closed system.

2.9 Case Studies

This subsection presents detailed case studies of organizations that have implemented specialty card products, specifically those that may be of interest to the student financial aid industry. The two case studies presented are EBT and the University of Florida's Gator One card. EBT represents a large scale, nation-wide implementation of a specific card product

that leverages existing debit card infrastructures. The Gator One card illustrates how an educational institution leveraged existing debit card networks and processes to enhance the delivery of its services to students. The Gator One card case study provides some input into the lessons learned when planning for and implementing a card.

2.9.1 Electronic Benefits Transfer

Electronic Benefits Transfer (EBT) is a nationwide initiative to electronically provide state and Federal benefits, primarily welfare benefits, to unbanked recipients. The EBT Council, under the auspices of the National Automated Clearing House Association (NACHA), is responsible for the development and maintenance of the Quest® Operating Rules (Rules). The EBT Council follows the NACHA rule making process used to develop and maintain operating rules for the ACH network. The EBT Council members include financial institutions, EBT service providers, payment associations, merchants, government entities, trade associations, and other stakeholders.

The Rules provide a nationwide set of regulations and procedures for using and processing EBT cards. More than forty states belong to coalitions that have joined the Council and that have voted in favor of the Rules.

In essence, EBT and the Quest® network comprise a “proprietary” system leveraging existing debit card networks, processing rules, and relationships between the participating organizations. If the state operates their EBT program under the Rules, recipients can use the card at any merchant or ATM that complies with the Rules and that display the QUEST® service mark.

EBT accounts are established by an issuer under contract to the state or Federal government. Except for certain settlement

transactions, e.g., between the EBT issuer and the state government, EBT transactions are processed and settled through existing debit card networks.

Most EBT accounts have two purses: one restricted to food purchases only and one unrestricted for general purchases or ATM withdrawals. Shortly before the beginning of the benefit period, usually monthly, the state or Federal government provides the contracted EBT issuer with the authorization limits for each EBT account. The EBT issuer does not automatically reset the authorization limit each month as the level of benefits could vary from month to month. Beneficiaries can access unused balances from the previous month. Any new authorization limits are added to the previous month’s balance by the EBT issuer.

Once the authorization limits have been established, the issuers process and authorize transactions against these limits. No “real” dollars exist in the accounts. The issuers do not require actual cash to be available on the account since, through their contractual agreement with the state or Federal government, they are guaranteed reimbursement for all lawful transactions.

The transaction processing closely mirrors standard on-line debit transaction processing.

1. The cardholder swipes the card at an ATM or POS terminal and enters a PIN.
2. If the transaction is for food purchases, the merchant includes a specific code in the transaction to indicate that the transaction should be posted to the food purse.
3. The ATM or POS terminal forwards the transaction to the merchant’s acquiring bank. (For ATM transactions, the acquiring bank is the “merchant”.)

4. The acquiring bank routes the transaction through the debit card network to the issuer.
5. The issuer authorizes the transaction based upon real-time authorization limits.
6. If approved, the transaction amount is immediately debited from the authorization limit.
7. The authorization flows back to the merchant through the payment association and the acquiring bank.
8. End-of-day reconciliation between the merchants, acquirers, and issuers follows the standard debit card settlement processes.
9. The issuer is reimbursed by the state or Federal government outside the scope of the debit card network.

Under the Quest® Operating Rules, merchants do not pay a fee for each transaction. In some instances, the state entity managing the EBT program actually provides a per transaction fee to the merchant for providing the service.

Cardholders can make two to three free ATM transactions per month and are charged a nominal fee for any additional ATM transactions.

2.9.2 Gator One Card

The Gator One card is the integrated student and employee campus card implemented by the University of Florida (UF) in 1994. The card is issued to approximately 42,000 students and 13,000 employees. The Gator One card is used for the following purposes.

- Identification
- Vending
- On-campus dining services

- Building/parking access
- Season sports tickets
- Library card
- Debit card

The card has the following physical characteristics.

- ID number (unique, randomly generated)
- Barcode (used for library services)
- Digitized color photo of the cardholder
- High coercivity magnetic stripe (used for on-campus purposes e.g., dining services, vending machines, building access)
- Low coercivity magnetic strip (used for debit card functionality)

UF manufactures the card at an on-campus card production center. The card is imaged with the student's or employee's name, his/her ID number, and a barcode. If the card is a replacement card, a version number is imbedded in the ID number and the old card is deactivated. The high coercivity stripe is then encoded to allow on-campus readers to read the card. The student can then take the card to dining services or a vending machine kiosk to add these related features.

All on-campus cardholder data is stored on a central UF mainframe. If the card is swiped by the cardholder, for example at a parking lot gate, the card number links to the cardholder data on the mainframe to determine if the cardholder has access to that parking lot.

Closed Versus Open Card Network

When planning for the Gator One card, UF considered implementing a closed card system, similar to that implemented

by Duke University. In the Duke model, the card can be used on-campus and at select off-campus vendors, such as local pizza parlors. A closed network offers a captive audience and a high level of control.

To allow off-campus vendors to accept the card, UF would, in essence, act as a financial institution, maintaining account balances for off-campus purchases at the vendors. As such, UF felt it would be subject to certain banking regulations such as Regulation E, the Federal regulations governing Electronic Funds Transfers (EFT.) However, the state government of Florida determined that on-campus transactions would not require UF to comply with banking regulations as these account “balances” would be considered pre-payment for university provided services. Therefore, if UF implemented a closed network card system, it would have only allowed on-campus transactions to avoid having to comply with banking regulations.

As an alternative, UF considered implementing an open network card system that would allow access to commercial banking systems. The president of UF favored an open network, forcing UF’s on-campus services to compete with commercial, off-campus providers on price, convenience, and service. In addition, financial aid funds could be deposited to the students account, alleviating some of the administrative burden placed on the bursar’s office to issue checks for excess financial aid funds. To add these financial capabilities to the card, UF decided to partner with a financial institution to implement an open card system.

UF considered using a Visa or MasterCard check card, an off-line debit card that flows through the Visa or MasterCard network, because it is more widely accepted than on-line debit cards. However, Visa and MasterCard have very strict

guidelines on how their cards can and cannot be used and were not comfortable allowing UF to use the Visa or MasterCard logo on a student card. Therefore, UF chose to implement on-line debit card features on its campus card.

Chip Versus Stripe Card

UF also considered implementing a chip card but could not envision an application that would justify its costs. The only useful chip application for UF is to store value for use at vending machines and the like. However, this functionality can be provided with a magnetic strip at less cost to UF. In addition, since smart card technology is still relatively new, there are few standards on how the chips are encoded and read.

Debit Card Features

Choosing to add debit card features to the Gator One card is a voluntary option for the student. Approximately 40% of students choose to add debit card features to their Gator One cards. The card is linked to a DDA at Barnett Bank. UF chose Barnett Bank as its partner because Barnett Bank was already providing UF with commercial banking services. Because of this relationship, UF was able to modify its existing contract rather than go through the entire procurement process, i.e., issue a Request for Proposal (RFP), evaluate proposals, etc.

For students choosing to use the Gator One card as a debit card, students can take the card to any Barnett Bank branch to encode the low coercivity strip. The low coercivity stripe has three tracks, one of which is not used by Barnett Bank. UF can use this track but has not yet found an need that requires its usage.

UF issues PINs for students to access their personal information that UF maintains. Barnett Bank issues a separate PIN for the debit card features of the card. The student can choose to have

the same numbers for both their UF and debit card PINs, however, the PINs are still maintained separately by UF and the bank. UF does not maintain any banking information.

UF can deposit excess financial aid funds directly to a student's DDA, either at Barnett Bank or another bank, rather than issuing a check. UF then sends a letter and statement to the student itemizing how much money is deposited to the account. Approximately 50% of excess financial aid funds disbursed to students are through EFT.

Relationship with Barnett Bank

When the Gator One card was first issued, Barnett Bank purchased all the necessary equipment for UF to produce the cards. The only equipment for the pre-1994 card that was reused by UF were the digital cameras.

UF charges students and employees \$10 for the initial card and \$15 for replacement cards. (For employees, the fees were paid by the Provost's office.) UF used the revenue generated from these fees to repay Barnett Bank for the equipment purchased.

When the card first came out, Barnett Bank required that the card numbers and the Honor (the debit card network) logo be embossed on the card. Barnett Bank felt this was necessary so that merchants could process the cards manually using carbon copies or if their POS terminals were not working properly. Today, the card number is imaged, not embossed, on the card. The risk of POS terminals not functioning properly is low, and the embossing caused some problems with UF's on-campus magnetic stripe readers. In addition, the Honor logo is no longer placed on the card by the bank.

Barnett Bank has required that specific verbiage typically found on credit and debit cards be printed on the back of the Gator One card, including a statement that the card is the property of

Barnett Bank. Barnett Bank states that the Honor network requires such statements. Based upon other campus cards that UF has seen, it would like to modify these statements so that they do not state that the card is the property of Barnett Bank.

Barnett Bank is probably making little, if any, profit on the Gator One card. Generally, students maintain relatively small balances. Barnett Bank views the Gator One card program as an opportunity for future, more profitable business. Once students graduate, they may stay with Barnett Bank, accumulate larger balances, need a loan for their first car or home, etc.

Barnett Bank has an exclusive right to convert the Gator One card to a debit card. UF has thought about allowing other banks in addition to Barnett Bank to provide debit card services for the Gator One card. However, the administrative burden of maintaining cards with multiple banks did not warrant the potential convenience offered to students. For example, every time a student wanted to change banks, UF would have to issue a new card to the student. In addition, having multiple bank partners would dilute the marketing and publicizing activities associated with the single bank card. Currently, Barnett Bank and UF jointly participate in advertising and promotional activities.

On-Campus Debit/Credit Card Transactions

Students cannot use credit cards to pay for tuition and fees at the bursar's office. The state government of Florida requires that the full amount of the tuition and fees be accepted from students. When accepting tuition or fees using a credit card, UF is responsible for paying interchange fees which equates to a percentage deduction from the full amount due to the state. The state views this as a surcharge. UF cannot pass the interchange fees to the students since the credit card payment associations do not allow merchants to pass the interchange fees

onto the consumer. Payment associations do, however, allow merchants to charge a “convenience” fee in some situations. Therefore, UF has installed kiosks throughout the campus where students can use their credit/debit cards to pay for tuition and fees, and they are charged a nominal fee to cover interchange expenses. Students and parents can also pay for tuition and fees via phone. UF charges a convenience fee for this service as well.

However, UF accepts debit cards for payment of tuition and fees at the bursar’s office for which UF pays Barnett Bank \$.07 per transaction. This flat fee is not considered a surcharge by the state government of Florida. UF pays Barnett Bank a flat fee for each check that it deposits, and the debit card interchange fee is considered a similar cost of doing business rather than a surcharge.

3 PROJECT EASI/ED PROCESSES

This Section provides an overview of the envisioned Project EASI/ED origination, disbursement, and, to a lesser extent, repayment processes as documented in the *BARD*.

Key characteristics of the Project EASI/ED origination, disbursement, and repayment processes are listed below.

1. Centralizes processing of Title IV financial aid data.
2. Utilizes a common process for the origination, disbursement, and repayment of all Title IV aid.

Parties Involved

The individuals and organizations involved in the envisioned Project EASI/ED processes are described below.

- *Participant.* The participant is the ultimate recipient of financial aid.
- *School.* The school is responsible for originating aid and initiating disbursements against the aid.
- *Lender.* The lender is the fund source for the Federal Family Education Loan Program (FFELP).
- *Project EASI/ED.* Project EASI/ED encompasses the necessary systems and staff at ED to facilitate the delivery of student financial assistance. Project EASI/ED is the fund source for Direct Loans and Pell Grants.

Project EASI/ED Disbursement Methods

There are several disbursement methods that schools may use to receive funds. They are the invoice method (for Direct Loans, FFELP, Pell Grants, and Federal Supplemental Educational Opportunity Grants [FSEOG]), scheduled disbursement method (for Direct Loans, FFELP, and Pell Grants), and drawdown method (for Direct Loans, Pell, and Campus Based Programs).

Use of these methods can be permitted or restricted based upon a school's performance and/or its capability to administer the method.

The invoice disbursement method, or just-in-time disbursement method, is the preferred disbursement method for Project EASI/ED. The invoice method was the only method evaluated for possible inclusion in the models developed for this best practices study, and, therefore, is the only one reflected in the process flow defined below.

Process Flow

The following narrative provides an overview of the Project EASI/ED process flow depicted in Figure 3-1.

Origination

1. Once financial aid packaging is complete for a given participant, the school uses a standard format to create origination records for the participant's Title IV financial aid. Project EASI/ED performs necessary edits and accepts or rejects the origination records. The approval or rejection is sent back to the school. If there are any problems with the origination records, the school corrects these problems and resubmits the origination records to Project EASI/ED.
2. Project EASI/ED forwards FFELP origination records to the appropriate lender. The lender accepts or rejects the origination record and notifies Project EASI/ED of its approval or rejection. This notification is then forwarded to the school by Project EASI/ED.

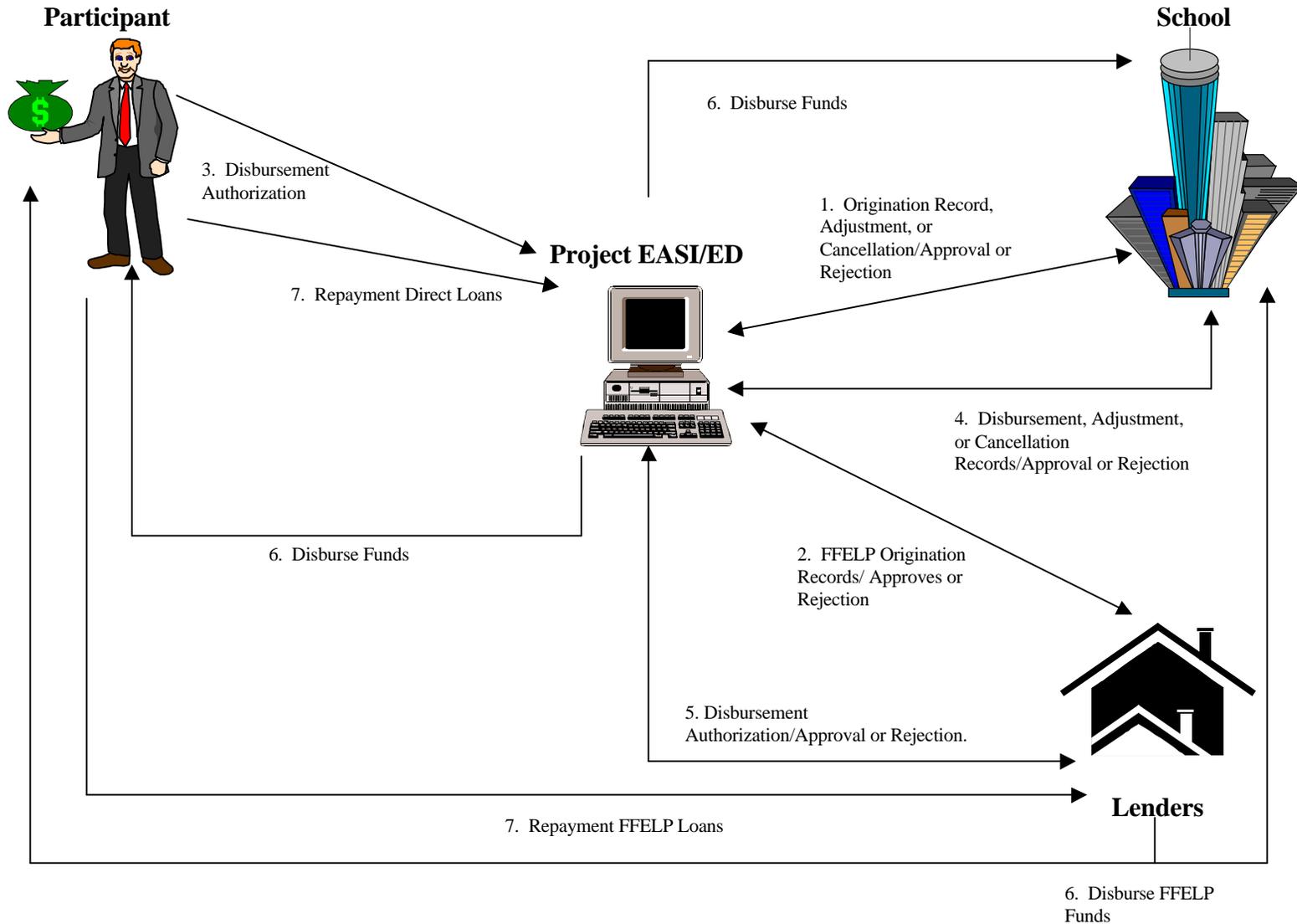


Figure 3-1 Project EASI/ED Process Overview

Disbursement

3. Through Project EASI/ED, the participant authorizes each Federal Title IV aid disbursement made to him/her throughout his/her enrollment. The participant may also direct that the disbursement amount be reduced from the amount authorized.
4. The school submits disbursement, adjustment, and cancellation records to Project EASI/ED. The system edits these records using the same edits that were applied to the corresponding origination records, and confirms that the disbursement date is no more than 10 days prior to the beginning of the school's academic period. Results of these edits are returned to the school.
5. Project EASI/ED forwards edited FFELP disbursement, adjustment, and cancellation records to the appropriate lender, along with the results of the edits. The lender authorizes or rejects the disbursements and notifies Project EASI/ED of the result.
6. If ED is the fund source, Project EASI/ED disburses the funds to the school and, for split disbursement, to the participant. Split disbursement refers to the ability to disburse financial aid funds not only to the school, but directly to the participant as well. Schools would receive the appropriate amount to cover tuition and fees. Any excess financial aid funds are disbursed directly to the student. Currently, schools receive the entire disbursement amount and then issue a check or ACH payment to the participant for excess financial aid funds. For FFELP, the lender disburses funds to the school and, for split disbursement, to the participant.
7. During repayment, the participant submits payments to Project EASI/ED for Direct Loans. If the loan is an FFELP loan, the participant submits payments to the appropriate lender.

Repayment

4 MODELS

This Section describes models that present how debit card processing and infrastructures could potentially be leveraged for the delivery of student financial assistance. Subsection 4.1 describes why the debit card infrastructure was chosen for these models over credit or charge card infrastructures. Subsection 4.2 presents the models developed.

These models were developed based upon the findings of research, interviews, and advice solicited from experts in card processing and financial aid. The models are not intended to provide the sole solutions. Rather, the purpose of the models is to show that commercial card processing can indeed be leveraged for the delivery of financial aid.

Financial aid has several unique requirements that are not accommodated in existing card infrastructures and processes. Some of these unique requirements are listed below.

- Any system implemented must ensure that schools receive payment to cover tuition and fees before allowing the student to use the financial aid funds for other expenses. Therefore, the capability must exist to ensure that the first disbursement transaction against any type of aid be initiated by the school for tuition and fees.
- Disbursement transactions (disbursement records) require two dollar amounts: gross disbursement (the total amount to be disbursed against the aid for that disbursement period) and net disbursement (the specific amount that should be disbursed to the school for payment of tuition and fees). Existing card transactions generally allow only one dollar amount. In addition, the disbursement transaction must identify to which aid program it applies.

This capability is not currently available in existing card infrastructures.

- Aid program level sub-accounts are necessary to maintain program level information for each student aid account. This capability is required to ensure proper accountability and audit trail information for the student, school, account manager, and fund source. This capability becomes particularly important if no business rules are in place that determine against which aid program disbursements should be made first if the requested amount is less than the total amount available for all programs. For example, a student has been awarded two pieces of aid, each worth \$1000. If the school submits a disbursement record for \$1000, the account manager must know to which aid program the disbursement should apply. No sophisticated sub-account structure currently exists with traditional debit card processing, although EBT has implemented a simple sub-account structure, as described in subsection 2.9.

These requirements were taken into consideration and are reflected in the models presented.

4.1 Debit Versus Credit/Charge Cards

In comparing debit, credit, and charge cards, the debit card infrastructure most closely met the needs of the financial aid card. Therefore, the models presented in this section leverage existing debit card infrastructures and processes. The primary factors influencing this decision are listed below.

Fluctuation of Account Balances

With a traditional credit card, the credit limit is relatively stable over long periods of time. With financial aid, the “credit limit” can fluctuate for a variety of reasons and with frequency. The credit limit increases for each piece of aid awarded. In addition,

the credit limit fluctuates if the student's eligibility changes, the student chooses not to receive aid, requires additional aid, or chooses to decrease the amount of aid awarded. As disbursements are made against the financial aid card, the effective credit limit decreases with each transaction. This constant fluctuation of the credit limit cannot be easily supported in existing credit networks and systems without significant modifications to systems and operating rules.

For charge cards, there is no "credit limit," per se. Charge cards generally do not have any preset spending limits, although the charge card issuers can place maximum charge limits on the card. Since charge card issuers generally do not maintain limits, it could be difficult for a charge card processor to maintain the fluctuating limits theoretically associated with a financial aid card.

With a traditional debit card, the account balance regularly fluctuates as deposits and withdrawals are made against the DDA to which the card relates. Financial aid funds could be viewed similarly in that funds are "deposited" to the student's account when originated and funds are "withdrawn" from the account when disbursed to the school or student.

Access to Accounts

For student financial aid, the school should receive appropriate payment to cover tuition and fees prior to allowing students to use the aid for other expenses. For a financial aid card, this requirement is met by keeping the account inactive or in suspense until the first transaction is initiated by the school. For the first year in which the student receives aid, this inactivation can be accomplished with a credit or charge card. The entire account will be in suspense until the first transaction is initiated by the school.

The following award year, the student should still have access to any excess funds from the previous year. The new year's aid, however, should not be available to the student until the school initiates the first disbursement transaction. The student's financial aid card account would require that some of its balances be available for spending while others are in suspense. This functionality currently cannot be accommodated with a credit or charge card. With a credit or charge card, the entire account must be active or inactive, such as when the cardholder's card expires. The issuer would place the entire account in suspense until the cardholder acknowledges receipt of the card and activates the account. However, no functionality currently exists to suspend only portions of the card account.

The debit card infrastructure can support this requirement. Since debit card transactions are processed against available balances in the account, the prior year's excess funds would still be available on the account. The new year's aid would not yet be "deposited" into the account, and, therefore, would not be made accessible to the student. As described in the models in the following subsections, the funds would be released and deposited into the student's account only after the school initiates the first disbursement transaction. At that point, the funds are available on a continual basis to the student.

Interchange Fees

Interchange fees are the fees charged by the issuer for each transaction submitted by merchants. For credit, charge, and off-line debit cards, the fees are a percentage of the transaction amount, typically 2 percent to 4 percent. For on-line debit cards, a flat fee is charged for each transaction, usually less than \$.10, regardless of the transaction amount.

Because the purpose of financial aid is to provide financial assistance to students, cost effective mechanisms for the delivery of funds should be a high priority. Each financial aid disbursement transaction could be for hundreds, if not thousands, of dollars. A percentage based interchange fee could be substantial for these transactions. A flat interchange fee, such as that charged for on-line debit cards, could prove to be the more cost effective alternative.

Association Rules

Traditionally, credit and charge card associations have operating rules to which all issuers, acquirers, merchants and cardholders must strictly adhere. There is very little flexibility in modifying the rules or the transaction formats. This strict adherence ensures the integrity of the system, and, therefore, the rules are seldom modified.

Debit card networks, however, have set a precedent for allowing new programs to modify operating rules for unique requirements. For example, the EBT Council developed a unique set of rules, the Quest® Operating Rules, which promulgate the use of EBT through existing debit card infrastructures. EBT leverages the existing debit card systems and the relationships between the involved parties while allowing for the unique requirements related to the delivery of welfare benefits to unbanked recipients. Similar rules could potentially be implemented for the delivery of student aid.

Security

With a traditional credit or charge card, the cardholder can swipe the card at a merchant's POS terminal and the transaction immediately flows through the payment association network. With an on-line debit card, the cardholder must enter a PIN for

each swipe of the card before the transaction is routed through the network.

This extra level of security could prove beneficial for a financial aid card. Since financial aid is dealing with billions of government provided dollars, strong precautions should be taken to avoid fraudulent transactions.

4.2 Models

Both models presented in this subsection are based upon debit card processing for the reasons described in subsection 4.1. Because debit cards are tied to DDAs and do not traditionally involve repayment, the Project EASI/ED repayment processes are not addressed in these models. The repayment process, specifically the receipt of payments from borrowers, will flow outside the debit card network.

None of the card environments (credit, charge or debit) have a process similar to the envisioned Project EASI/ED origination process. In the card environment, the "origination" of the account encompasses the receipt and processing of an application. This process resembles the Project EASI/ED application process rather than the origination process. Therefore, the origination processes in the models flow outside of the debit card network.

4.2.1 Debit Card for Excess Funds Model

The Debit Card for Excess Funds Model allows students to access excess financial aid funds, i.e., financial aid funds not paid to schools for tuition and fees, by using a debit card. Key characteristics of the model are listed below.

1. Leverages existing debit card infrastructures for the delivery and use of excess financial aid funds by students.

2. Follows debit card business processes for settlement between schools and fund sources.
3. Centralizes data and disbursement processing by an account manager.

Parties Involved

The individuals or organizations involved in this model are described below.

- *Student.* The ultimate recipient of financial aid. The student is issued a financial aid card that can be used to access excess financial aid funds.
- *School.* The school is responsible for originating aid and for initiating the initial disbursements against the aid.
- *Fund source.* The fund source provides the financial aid funds.
- *Account manager.* The account manager is responsible for processing financial aid disbursement transactions and for settling funds between the school and fund sources. The account manager is also responsible for processing the excess funds transactions and maintaining the student's excess cash balances like a traditional DDA. The account manager is a member of the debit card payment association.
- *Payment association.* The payment association is responsible for routing transactions made by the student with the financial aid card. It is also responsible for the settlement of funds between the account manager and the acquiring financial institution for the excess funds transactions made by the students.
- *Merchant.* The merchant provides goods and services to the student and accepts the financial aid card for payment.

- *Acquiring financial institution (Acquirer).* The acquiring financial institution maintains a relationship with the merchant to process card transactions. The acquiring financial institution belongs to the appropriate debit card association that services to the financial aid card. In cases of ATM transactions, the acquiring bank is also the “merchant” providing cash to students.

Process Flow

The following narrative describes the process flow for the Debit Card for Excess Funds Model depicted in Figure 4-1.

Origination/Account Establishment

1. The school submits origination records for each piece of aid to the appropriate fund source through the envisioned Project EASI/ED system. The fund source approves or rejects the origination record and sends the response back to the school.
2. If approved, the fund source authorizes the account manager to establish a card account for the student. If the student already has a card account, the account manager updates the account to reflect the new aid being originated.
3. If the account is a new account, the account manager manufactures and sends the card to the student. If the student already has a card, the account manager will forward a statement to the student summarizing the aid added to the account. With both the card and the statement, the account manager provides instructions for the student to authorize disbursements.

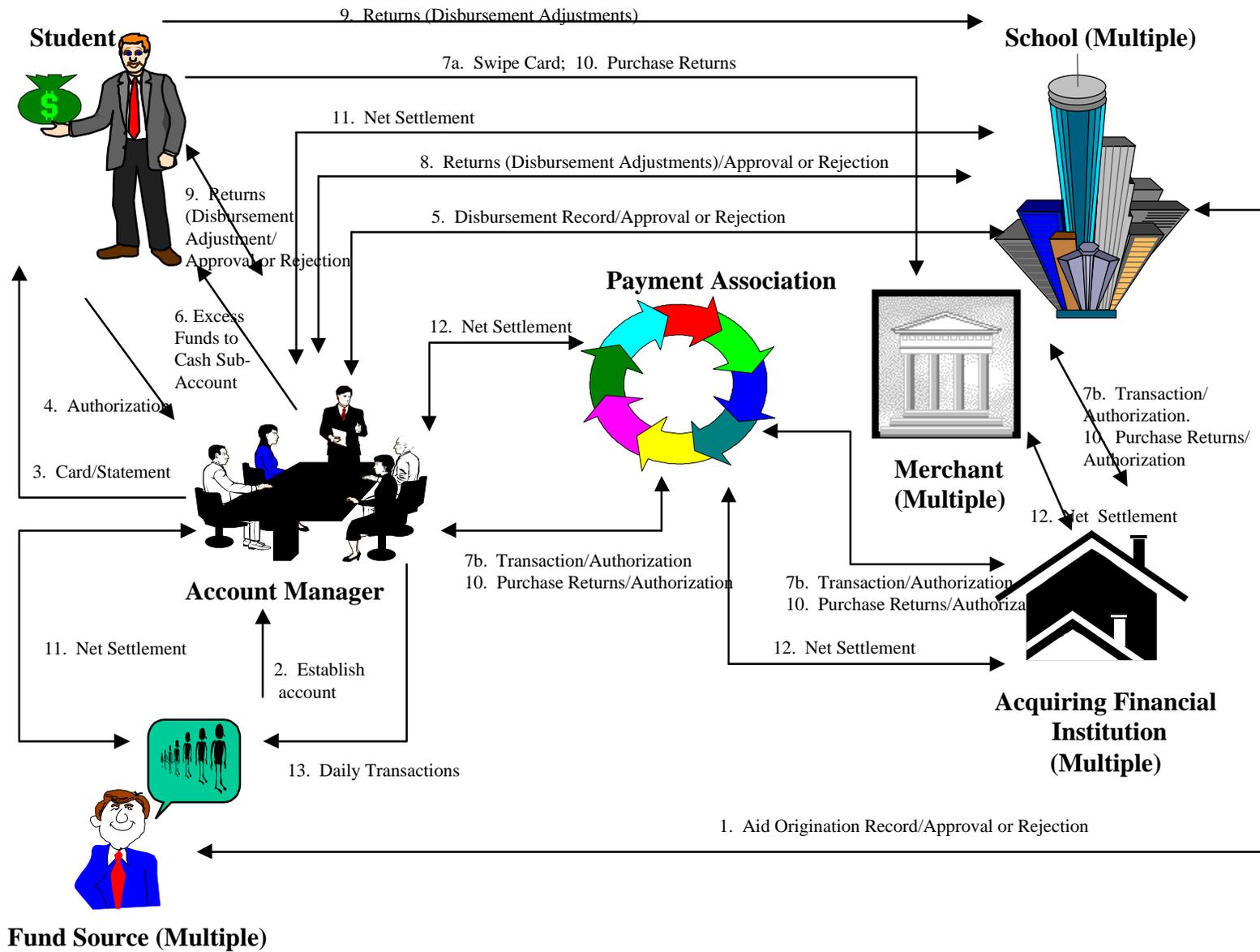


Figure 4-1 Debit Card for Excess Funds Model

4. If the student wants the aid, he/she authorizes disbursements to be made against his/her aid account by providing the account manager with a PIN or other authentication information via phone or the Internet.

Disbursement/Transaction Processing

5. The school submits disbursement records to the account manager indicating the gross disbursement amount and the net amount that the school should receive. The gross disbursement amount is the total amount of the disbursement to be made against the aid. The net amount is the amount that should be paid to the school for tuition and fees. This record flows through the envisioned Project EASI/ED system, not through the debit card network. If the school does not require any funds, i.e., the student should receive the entire disbursement amount, a zero dollar amount should be placed in the school disbursement amount field. The school can submit individual, real-time transactions or a batch, end of day file transfer. The account manager performs the necessary edits, such as verifying that the requested disbursement amount does not exceed the origination amount and approves or declines the disbursement records. For loans, interest accrues on the gross disbursement amount, not the net amount disbursed to the school.
6. Any excess financial aid not disbursed to schools is immediately “deposited” into the cash sub-account on the student’s card account by the account manager. The excess cash sub-account balance is the sum of all excess funds from all aid programs, potentially across multiple award years. The account manager maintains this balance like a traditional DDA. The student can use the card and access the cash sub-account at any merchant that accepts transactions for the payment association to which the account manager belongs. Monthly statements could be sent to the student itemizing all transactions against the account.
7. Transactions against this cash sub-account are processed exactly like any other on-line debit card transaction.
 - 7a. The student swipes the card at the merchant POS or at an ATM and enters a PIN.
 - 7b. The transaction flows from the merchant to the acquirer who forwards the transaction through the payment association to the account manager. (For ATM transactions, the merchant and the acquirer are generally the same entity.) The account manager approves or declines the transaction based upon the real-time cash sub-account data it maintains, and the result is transmitted back to the merchant.
8. Schools may initiate “returns” by submitting disbursement adjustment records. These disbursement adjustment records flow outside the debit card network from the school directly to the account manager. If any cash remains in the student’s excess cash sub-account, the account manager debits the sub-account and credits that amount to the fund source. If the adjustment affects the amount the school received, the return amount will be considered a debit against the school, i.e., the school must return funds to the account manager during end of day settlement, and as a credit to the fund source. These returns (disbursement adjustments) reduce the overall aid amount.
9. The student can also initiate returns (disbursement adjustments) by contacting the account manager via phone or the Internet. If there are any funds in the student’s cash sub-account, the balance will be reduced by the returned

amount. This amount will be credited back to the fund source at the end of day settlement. If the student wants to return funds in addition to than what remains in the cash sub-account, he/she must work with the school to initiate a return (disbursement adjustment) as described in step 8.

10. The student can also initiate a purchase return by which the student returns goods and services to the merchant. In these cases, the returns will be processed by the account manager like a traditional debit card purchase return. The amount of the return will be added and made available on the student's cash sub-account.

Settlement

11. At end of the day, the school submits a file that contains all the transactions (disbursements and disbursement adjustments) for that day to the account manager. This file flows outside the debit card network. (This file could also represent the batch file of actual disbursement transactions referenced in step 5.) The account manager then initiates net settlement between itself, the schools, and the fund sources. If the school is in a positive net settlement position, i.e., its total disbursement amount exceeds its total return (disbursement adjustment) amount, the account manager will initiate a funds transfer to the school. Conversely, if the school initiated more returns than disbursements, the school will initiate a funds transfer to the account manager. The account manager similarly performs a net settlement with the fund sources, initiating or receiving a funds transfer, based upon the fund sources' end of day settlement position.
12. For transactions initiated by the student against his/her cash sub-accounts, the account manager will follow the existing settlement procedures established by the debit

card network to which it belongs. The merchants will submit their end of day transactions to their acquirers who subsequently forward the transaction to the debit card payment association for routing to the issuer. The account manager is considered the issuer of the financial aid card and settles with the debit card payment association like any other debit card issuer. (Refer to subsection 2.6 for a detailed explanation of the settlement process.)

13. The account manager provides daily transaction information to the fund sources for updating of their records.

Benefits of the Debit Card for Excess Funds Model

1. The Debit Card for Excess Funds Model effectively provides students access to excess financial aid funds. Currently, schools are burdened with receiving the entire disbursement amount and then issuing a payment, either via check or EFT, to the student. This model allows for the account manager to provide the funds directly to the students.
2. This model adheres to the just-in-time disbursement process as envisioned by Project EASI/ED. Schools will receive funds based upon the disbursement records submitted to the account manager.
3. The account manager is responsible for processing disbursement transactions for all schools and all fund sources. The account manager, therefore, serves as the central point of contact through which student accounts and transactions against the account are stored. This centralization facilitates the sharing and maintenance of student-level aid information between all involved parties.

4. This model conforms to the financial aid card model being discussed with the National Partnership for Reinventing Government's (NPR's) Access America initiative.
5. The settlement process between the schools and the fund sources emulates the settlement process followed by parties involved in traditional debit card processing. Leveraging proven commercial practices could help improve financial aid cash management practices.

Potential Limitations of the Debit Card for Excess Funds Model

In this model, school disbursement records flow outside of the debit card network, primarily because of the limitations of existing debit card transactions. In the envisioned Project EASI/ED disbursement process, the type of aid is identified on the disbursement records. In addition, the gross and net disbursement amounts are included on the record. Existing debit card transaction formats cannot currently provide the functionality to identify the type of aid or specify multiple disbursement amounts.

Options to the Debit Card for Excess Funds Model

In the envisioned Project EASI/ED invoice disbursement process, the origination record contains an anticipated gross disbursement amount for each disbursement period. However, the actual amount disbursed is the gross disbursement amount on the disbursement record. The amount on the disbursement record overrides the anticipated disbursement amount on the origination record. The disbursement record also indicates the net disbursement amount, which is the amount that the school will receive for tuition and fees. The difference between the gross and net disbursement amounts is the amount that should

be disbursed directly to the student for expenses other than tuition and fees.

In order to utilize existing debit card networks for school disbursement records, the aforementioned Project EASI/ED processes would need to be modified. In this scenario, the disbursement amount on the origination records would be a binding gross disbursement amount. The school would then submit a disbursement transaction through the debit card network. The amount on this disbursement transaction would represent the net disbursement amount.

This process flow would require that schools submit accurate origination records or adjustments prior to submitting disbursement transactions through the debit card network. In addition, since the aid program cannot be identified, the disbursement transaction from the school would be a lump sum disbursement request for all pieces of aid originated for the student.

When the disbursement transaction is received, the account manager would "activate" all aid from all fund sources that has been awarded to the student. The excess financial aid amount, i.e., the difference between the anticipated disbursement amounts on the origination records for all types of aid for the student and the amount on the disbursement transaction, would then be placed in the student's excess cash sub-account.

4.2.2 Modified Debit Card Model

A modified debit card infrastructure is proposed for this model that leverages commercial debit card networks, processes, and relationships between the involved parties and accommodates the unique requirements of financial aid by establishing specialized operating rules and transaction formats. This model

is similar to what was accomplished for EBT through the Quest® Operating Rules.

Characteristics of the Modified Debit Card Model

Key characteristics of this model are described below.

1. One account manager would be responsible for processing transactions on behalf of all fund sources.
2. Schools would maintain a relationship with an acquiring financial institution of their choice, as long as the acquirer complies with the new operating rules of the financial aid card.
3. The model follows on-line debit card processing in that transactions are authorized by the account manager against real-time data. The account balances are immediately debited or credited for all transactions. For the student to use the card against the cash sub-account, the PIN must be entered. However, for school disbursement transactions, the student does not necessarily initiate the transaction and no PIN is entered.

Parties Involved

The individuals or organizations involved in this model are described below.

- *Student.* The ultimate recipient of financial aid. The student is issued a financial aid card that can be used to access financial aid funds.
- *School.* The school is responsible for originating aid and for initiating the first disbursement transactions against the aid.
- *Fund source.* The fund source provides the financial aid funds.

- *Account manager.* The account manager is responsible for processing all disbursement transactions and maintaining student-level account information. The account manager is a member of the payment association that operates under the financial aid operating rules.
- *Payment association.* The payment association is responsible for routing transactions between the account manager and the acquiring financial institutions. It is also responsible for the settlement of funds between the account manager and acquiring banks.
- *Merchant.* The merchant provides goods and services to students, paid for by the financial aid card.
- *Acquiring financial institution (acquirer).* The acquiring financial institution maintains a relationship with the merchant or school to process card transactions. The acquiring bank belongs to the debit card association that conforms to the operating rules of the financial aid card. In cases of ATM transactions, the acquiring financial institution is also the “merchant”.

Process Flow

The following narrative describes the process flow for the Modified Debit Card Model depicted in Figure 4-2.

Origination/Account Establishment

1. The school submits origination records for each piece of aid to the fund source through the envisioned Project EASI/ED system. The fund source approves or rejects the origination record and sends the response back to the school.

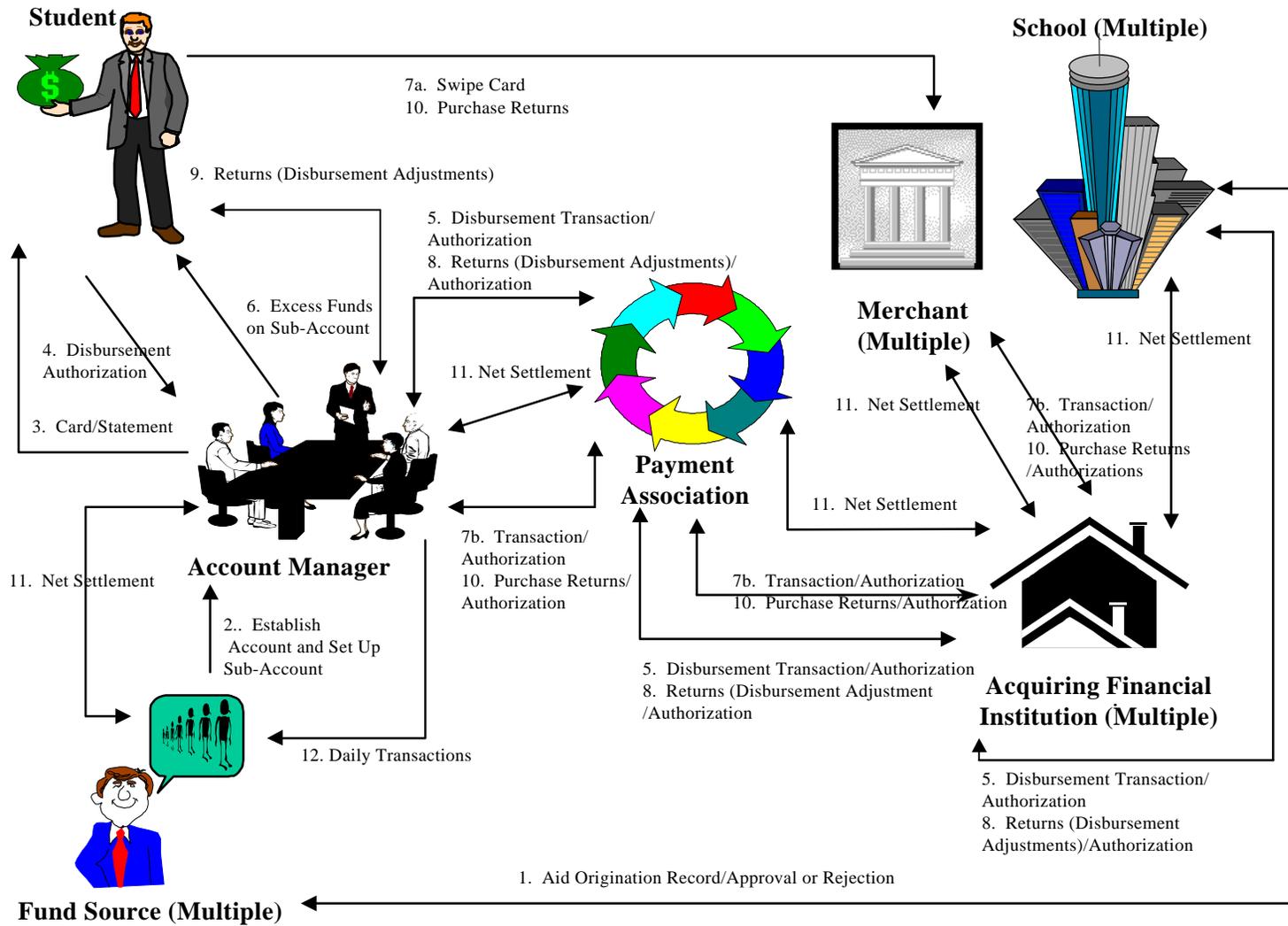


Figure 4-2 Modified Debit Card Model

2. If approved, the fund source authorizes the account manager to establish a card account and set up a new sub-account for the particular type of aid. If the card account already exists, the sub-account for that piece of aid is established. If the sub-account already exists, the new aid will be added to that sub-account. Each sub-account has an upper authorization limit, based upon the aid award amount on the origination records. Each card account also has a cash sub-account into which all excess funds from all aid programs will be made available to the student. This cash sub-account is established when the account manager establishes a new card account
3. If the account is new, the account manager manufactures and sends the card to student. If the student already has a card, the account manager will forward a statement to the student summarizing the additional aid that has been added to the account. With both the card and the statement, the account manager provides instructions for the student to authorize disbursements against his/her account.
4. If the student wants the aid, he/she authorizes disbursements by providing the account manager with a PIN or other authentication information via phone or the Internet.

Disbursement/Transaction Processing

5. The first disbursement transaction must originate from school. This restriction can be enforced by verifying that the first transaction against the account contains the appropriate school's (merchant) ID. If restricting to a specific school is not desired, the restriction could be enforced by extracting the SIC code from the transaction. SIC codes identify the type of business submitting the transaction. A business rule could be established that

- requires that the first transaction against any sub-account must originate from a "business" with a school SIC code. The school submits a transaction (disbursement record) using its POS to its acquiring bank for each piece of aid for subsequent routing to the account manager through the payment association. The student is not required to physically swipe the card for transactions initiated by schools. The transaction includes both the gross and net disbursement amounts. The net disbursement amount is the amount that should be sent to the school. If the school does not require any funds, the gross disbursement amount should be made available to the student and a zero dollar amount should be placed in the net disbursement amount. Schools can transmit individual records throughout the day or submit a batch file at the end of day or periodically throughout the day. Upon receipt of the transactions, the account manager performs the necessary edits and approves or declines the disbursement records. The gross disbursement amount will be deducted from the upper authorization limit for the sub-account. For loans, interest accrues on the gross disbursement amount.
6. The account manager would immediately place any excess financial aid not disbursed to schools in a "cash" sub-account on the card account. The excess cash sub-account balance is the sum of all excess funds from all aid programs, potentially across multiple award years. The account manager will maintain this balance like a traditional DDA. The student can use the card and access the cash sub-account at any merchant that accepts the financial aid card.
 7. Transactions received after the initial transaction from the school, i.e., when the student uses the card at an ATM or POS terminal, will be authorized against and applied to the

student's cash sub-account. These transactions will be processed exactly like any other on-line debit card transaction.

- 7a. The student swipes card at the merchant POS or at an ATM and enters a PIN.
- 7b. The transaction flows from the merchant to the acquirer through the payment association to the account manager. (For ATM transactions, the merchant and the acquirer are generally the same entity.) The account manager either approves or declines the transaction based upon the real-time cash sub-account data it maintains and debits the sub-account for that amount. The result is transmitted back to the merchant.
8. The school can initiate a return transaction (disbursement adjustment record) through the debit card network. The return indicates the adjustment amount and the amount of the previous gross disbursement amount. If any funds are present in the cash sub-account, this balance will be deducted and credited to the fund source. If the adjustment affects the amount the school received, the return amount will be considered a debit against the school and would be reflected in the end of day settlement. (Refer to Step 11 for a full description of the end of day settlement process.) The gross amount of the aid is decreased by the return amount.
9. After funds have been disbursed to the school, the student can initiate returns (disbursement adjustments) by contacting the account manager via phone or the Internet. If there are any available funds in the student's cash sub-account, the balance will be reduced by the return amount. This amount will be credited back to the fund source at the end of day settlement. If the student wants to return funds

in addition to what remains in the cash sub-account, he/she must work with the school to initiate a return as described in step 8.

10. The student can also initiate a return of a purchased item at a merchant. In these cases, the purchase return will be processed by the account manager like a traditional debit card return. The amount of the purchase return will be added to the cash sub-account of the student's card account.

Settlement

11. At the end of the day, net settlement between the school, acquirer, account manager, merchant, and debit card association is performed. The debit card association is responsible for determining the net position of the involved parties. However, the settlement between the fund sources and the account manager will flow outside the debit card association.
 - If the school or merchant initiated more disbursement transactions than returns, it will receive funds from the acquirer. Otherwise, the school or merchant transfers funds to acquirer.
 - The acquirer, based upon its net position for all the schools and/or merchants for which it processes transactions, will either pay or receive funds to or from the debit card association.
 - The account manager, based upon its net position for all transactions, will either pay or receive funds from the debit card payment association.
 - The fund sources, based upon their net positions with the account manager, will pay or receive funds from the account manager. The settlement between the

account manager and the fund sources occurs outside the debit card network, as the fund source does not have a direct role in the debit card processing.

12. The account manager provides fund sources with a daily upload of information to ensure that all fund sources have current, up-to-date information.

Benefits of the Modified Debit Card Model

In addition to the benefits identified for the Debit Card for Excess Funds Model, this model offers some additional benefits.

1. With new operating rules similar to those implemented by EBT, this model incorporates most of the unique requirements of financial aid delivery while leveraging existing debit card infrastructures and relationships between merchants, banks, and payment associations. The new operating rules should clearly spell out the responsibilities and liabilities for all involved parties, similar to those already in place for traditional debit card processing.
2. Schools could potentially use their existing acquirers who process their traditional debit card transactions. The agreement or contract between the schools and acquirers would require modifications to include processing of financial aid card transactions.
3. Since all disbursement transactions flow through the debit card network, the system maintenance and development would be incumbent upon the network.

Potential Limitations of the Modified Debit Card Model

This model requires the development of new operating rules and some slight modifications to transaction formats, similar to the process followed by the EBT Council to develop the

Quest® Operating Rules. This development could potentially require a significant amount of time. The EBT Council required over 2 ½ years to develop the Quest® Operating Rules.

In addition, getting merchants, acquirers and schools to comply with any new operating rules established for the financial aid card requires substantial coordination and marketing by the proponents of the rules. The initiation of the rules making process through an organization such as NACHA also requires “buy-in” from NACHA and other affected community members.

5 SUMMARY

Based upon the research, interviews, and site visits conducted for this best practices study, card processes and infrastructures can be leveraged for delivery of student financial aid as envisioned by Project EASI/ED. The two models discussed in this document, the Debit Card for Excess Funds Model and the Modified Debit Card Model, represent two high-level scenarios for implementing card processing to deliver financial aid. When planning for the implementation of a financial aid card, ED should consider the following benefits and limitations of each model.

Benefits of the Debit Card for Excess Funds Model

1. The Debit Card for Excess Funds Model effectively provides students access to excess financial aid funds. Currently, schools are burdened with receiving the entire disbursement amount and then issuing a payment, either via check or EFT, to the student. This model allows for the account manager to provide the funds directly to the students.
2. This model adheres to the just-in-time disbursement process as envisioned by Project EASI/ED. Schools will receive funds based upon the disbursement records submitted to the account manager.
3. The account manager is responsible for processing disbursement transactions for all schools and all fund sources. The account manager, therefore, serves as the central point of contact through which student accounts and transactions against the account are stored. This centralization facilitates the sharing and maintenance of student-level aid information between all involved parties.

4. This model conforms to the financial aid card model being discussed with the National Partnership for Reinventing Government's (NPR's) Access America initiative.
5. The settlement process between the schools and the fund sources emulates the settlement process followed by parties involved in traditional debit card processing. Leveraging proven commercial practices could help improve financial aid cash management practices.

Potential Limitations of the Debit Card for Excess Funds Model

In this model, school disbursement records flow outside of the debit card network, primarily because of the limitations of existing debit card transactions. In the envisioned Project EASI/ED disbursement process, the type of aid is identified on the disbursement records. In addition, the gross and net disbursement amounts are included on the record. Existing debit card transaction formats cannot currently provide the functionality to identify the type of aid or specify multiple disbursement amounts.

Benefits of the Modified Debit Card Model

In addition to the benefits identified for the Debit Card for Excess Funds Model, this model offers some additional benefits.

1. With new operating rules similar to those implemented by EBT, this model incorporates most of the unique requirements of financial aid delivery while leveraging existing debit card infrastructures and relationships between merchants, banks, and payment associations. The new operating rules should clearly spell out the responsibilities and liabilities for all involved parties, similar to those already in place for traditional debit card processing.

2. Schools could potentially use their existing acquirers who process their traditional debit card transactions. The agreement or contract between the schools and acquirers would require modifications to include processing of financial aid card transactions.
3. Since all disbursement transactions flow through the debit card network, the system maintenance and development would be incumbent upon the network.

Potential Limitations of the Modified Debit Card Model

This model requires the development of new operating rules and some slight modifications to transaction formats, similar to the process followed by the EBT Council to develop the Quest® Operating Rules. This development could potentially require a significant amount of time. The EBT Council required over 2 ½ years to develop the Quest® Operating Rules.

In addition, getting merchants, acquirers and schools to comply with any new operating rules established for the financial aid card requires substantial coordination and marketing by the proponents of the rules. The initiation of the rules making process through an organization such as NACHA also requires “buy-in” from NACHA and other affected community members.

Conclusion

These models were developed based upon the findings from research, interviews, and advice solicited from experts in card processing and financial aid. The models are not intended to provide the sole solutions for a financial aid card. Rather, the purpose of the models is to show that private sector card processing can indeed be leveraged for the delivery of financial aid.

Further investigation and discussion by ED and community stakeholders will be necessary if they choose to leverage card processing for the delivery of financial aid. Close coordination between ED and potential contractors for the issuance and maintenance of the card account is crucial to the success of any card program. In addition, discussions with the payment association, whether that be a debit, credit or charge card association, will be necessary to determine what, if any, modifications to systems or operating rules will be necessary to implement a card product.

APPENDIX A – ACRONYMS

The acronyms used in this document and their definitions are listed below.

ACH	Automated Clearing House
AMS	American Management Systems
ANSI	American National Standards Institute
ASCII	American Standards Code for Information Interchange
ATM	Automated Teller Machine
BARD	Business Area Requirements Document
CPS	Central Processing System
CSLP	Colorado Student Loan Program
CTX	Corporate Trade Exchange
DDA	Demand Deposit Account
EASI	Easy Access for Students and Institutions
EBT	Electronic Benefits Transfer
ED	United States Department of Education
EDI	Electronic Data Interchange
EDS	Electronic Data Systems
EFT	Electronic Funds Transfer
FAFSA	Free Application for Federal Student Aid
FFELP	Federal Family Education Loan Program
FSEOG	Federal Supplemental Educational Opportunity Grants

GLOS	Guarantor and Lender Oversight Service
GSA	General Services Administration
ID	Identification
ISO	International Organization for Standardization
LLP	Limited Liability Partnership
MIPS	Millions of Instructions Per Second
MIS	Management Information Systems
NACHA	National Automated Clearing House Association
NPR	National Partnership for Reinventing Government
OMB	Office of Management and Budget
PAN	Primary Account Number
PC	Personal Computer
PEPPER	Project EASI Participant Pilot for Electronic Re-engineering
PIN	Personal Identification Number
PLUS	Parents Loan to Undergraduate Students
P-Note	Promissory Note
POS	Point-of-Sale
PwC	PricewaterhouseCoopers
RFP	Request for Proposal
SIC	Standard Industry Classification
SSN	Social Security Number
UF	University of Florida
UK	United Kingdom

UNC University of Northern Colorado
US United States
USPS United States Postal Service

**APPENDIX B – SUBJECT MATTER EXPERT
INTERVIEW SCRIPTS**

This appendix provides the script used for the subject matter expert interviews.

1. Please provide an overview of how cardholder credit/debit accounts are established.
 - Can you “differentiate” a single cardholder account into sub-accounts so that the issuing financial institution can utilize the sub-accounts for specific purposes while masking the distinction to the cardholder?
 - Are there any cases where a third party processor maintains a single cardholder account on the behalf of multiple issuing financial institutions (i.e., the cardholder has “one” account, but that account is tied to several different issuing financial institutions.)
 - Are there significant differences between establishing a cardholder credit versus debit card account?
2. Please provide an overview of how sales and chargeback transactions against credit/debit card accounts are processed.
 - How does the authorization process work? Are the authorizations processed against real-time data directly with the issuing financial institution or does the issuing financial institution provide daily/hourly updates to the payment association?
 - What data elements are transferred between the parties for these transactions? Are there specific file layouts?
 - How are chargebacks applied to accounts? How are disputes, both cardholder and merchant initiated, handled?
3. Please describe the reconciliation and accounting processes for the cardholder accounts and between the involved parties.
 - If sub-accounts within the one cardholder account are possible, how are the transactions handled against the individual sub-accounts?
 - What are the costs incurred by all parties involved when a transaction flows through the system?
 - How are the funds transferred between the issuing financial institution and the acquiring financial institution? Does the settlement occur through the payment association network or does it flow outside the network, such as through FEDWIRE or through the ACH network?
 - For transfers to the merchant, do merchants traditionally have an account at the acquiring financial institution to which funds are deposited or are funds deposited into another account at another financial institution?
 - How is “netting-out” (i.e., adjusting payables by the amount of receivables) between issuing and acquiring financial institutions handled?
4. Please describe how payments received from cardholders are processed.
 - How are monthly statements produced?
5. Please provide an overview of the information technology that supports the credit/debit card infrastructure.
 - What types of software, hardware, telecommunications, etc., are necessary for all participants?

- Is the technology used substantially different between credit card versus debit cards?
6. Please describe the legal and business obligations between the involved parties, including, but not limited to, cardholders, merchants, acquiring financial institutions, payment associations, issuing financial institutions, third party processors.
- If an organization desires to become a card issuer but does not currently have a relationship with any payment associations, what would be necessary for this organization to issue a card? Even if the organization uses a third party processor, e.g., First Data, Total Systems, does the organization have to become a “member” of the payment association?
7. Do you know of any specific examples by which a card product was developed using existing credit/debit card infrastructures for a specific purpose, e.g., electronic benefits transfer (EBT), campus cards, purchasing cards?
- Why did these organizations choose to use credit/debit card infrastructure and processes?
 - What are the potential benefits? What are the potential pitfalls and costs?
 - What are the processes followed by organizations, specifically the issuing financial institution, to develop and implement these specialized payment products? (Examples of the “do’s” and “don’ts” would be very helpful.)

APPENDIX D – SITE VISIT QUESTIONNAIRE

This appendix includes the questionnaire used for the UF site visit.

University of Florida Questionnaire

1. Please describe how UF planned for the implementation of the campus card.
 - When planning for the new campus card, what factors influenced UF to include debit card features to the card?
 - What were the potential benefits and pitfalls for UF and for students?
 - How did UF internally plan for the campus card implementation, e.g., staff, new procedures, etc.?
2. Please describe the relationship between UF and affected parties, e.g., the bank, students, merchants, etc.
 - What is the nature of the agreements between all involved parties?
 - Does UF or the student incur any fees for the card itself or any transactions made on the card?
3. Please describe the features of the campus card, including UF campus specific features (ID card, meal card, etc.) and the debit card features.
 - How are the cards issued to the student? How is the bank account to which the debit card relates established?
 - For the debit card features of the campus card, is it treated as a traditional debit card with access to a standard bank account?
4. Please describe the transaction flow for campus card transactions, including debit card transactions.
 - Can other parties other than the student, e.g., schools, parents, student loan lenders, deposit funds into the debit card account? If so, how are these deposits made and processed?
 - Are there separate “purses” on the card, and, specifically, on the bank account to which the campus card relates?
 - Did UF have any input into how the debit card features can be used? Or did it rely on the bank to determine the process flow?
 - For each feature of the card, what are the processes and transaction flows?
 - When a student uses the debit card at an ATM or point of sale (POS) terminal, does the transaction act like a traditional debit card transaction?
 - Did the school acquire POS terminals at locations such as the book store and the bursar’s office to accept the campus card? If so, please describe what was necessary to acquire the POS terminals. If UF modified existing credit card POS terminals to accept debit card transactions, please describe how they were modified.
 - Does UF pay transaction fees for purchases made on campus with the campus card?
 - If the card is used at UF sites, how does UF receive the funds for the sales transactions?
5. Please describe the infrastructure, including staff, information technology, and operating procedures,

implemented by UF to manage and maintain the campus card.

6. Please describe any lessons learned from UF's experience with implementing the campus card.
 - How did you determine the effectiveness of the use of the campus card?

APPENDIX E - SITE VISIT REPORT

This appendix presents the report summarizing the UF site visit.

University of Florida Site Visit Report

Attendees:

- Bob Miller (Assistant Vice President for Administrative Affairs, University of Florida)
- Stuart Hoskins (Associate Controller, Finance and Accounting, University of Florida)
- Dorothy Etienne (Finance and Accounting, University of Florida)
- Karen Fooks (Director, Financial Aid, University of Florida)
- Bob Harrel (Coordinator, ID Card Services, University of Florida)
- Bill Noffsinger (Information Systems, University of Florida)
- Bob Wickham (Information Systems, University of Florida)
- Neil Sattler (US Department of Education)
- Charlie Morgan (PricewaterhouseCoopers)
- Bob Walsh (PricewaterhouseCoopers)

I. Introduction

University of Florida Overview

The University of Florida (UF) has approximately 42,000 students and 13,000 employees. UF is one of ten state universities in Florida with each school being an independent entity. UF does not have any branch campuses.

In the 1997-98 academic year, UF disbursed approximately \$161 million in financial aid funds of which \$55.6 million were “collection” amounts (the student’s obligation to UF for tuition and fees), \$52.6 million disbursed to students by check, and \$53.3 million disbursed by ACH payments.

UF is a Direct Lending school. UF chose Direct Lending because the Federal Family Education Loan Program (FFELP) was an administrative burden for UF. UF allowed students to receive loans from virtually any bank of their choice, and, therefore, UF was dealing with multiple guaranty agencies and banks nationwide.

II. Planning Process for Campus Cards

Pre-1994 Campus Card

At the University of Florida in 1990, students were issued multiple campus cards, examples of which are listed below.

- Fee Card: This card was validated with a colored sticker each time the student paid his/her fees. UF does not pre-bill for their fees. The students are responsible for knowing how much they owe and paying their fees by the end of the second week of classes.
- Picture ID Card
- Library Card
- Football Season Ticket Card
- Meal Card
- Others (lab cards, student recreation center, etc.)

The student body elected an engineering student to the office of student government president that year in part because he promised to integrate all UF cards into a single card. Although he left office after one year without seeing the completion of his

efforts, he is widely credited with generating support for the single card initiative.

The first integrated card was a laminated card with a color Polaroid picture, a bar code used for library services, and magnetic stripe. The magnetic stripe had three tracks that were used for the purposes listed below.

- Food services: Students were able to pay for meals by debiting their food services account. UF contracts for its on-campus food services so the contractor was required to modify their registers to accept the magnetic stripe and develop a central database to store students' account information.
- Vending services: Students could load up to \$20 onto Track 3, the "junk stripe", of their card for use with vending machines. Vending machines are contracted to another vendor. The format of this "junk" stripe was dictated by the vendor, although it was customized for UF as most vending machines read Track 2 of a magnetic stripe.
- Access: Students could use their card to gain access to certain buildings and parking lots. For access to some buildings, UF used the card to access a database that indicated whether or not the student had paid their fees. If so, the building attendee would let them in. In some areas, the doors were hardwired to provide or deny access, e.g., the computer center and other sensitive areas. The parking lot devices compared the social security number (SSN) of the cardholder against a list of those allowed to access the specific lot. The list was initially stored on a tape physically loaded at the gate site. Later, the parking lot gates were linked directly to a central database.

Benefits of the first integrated card included the following.

1. It replaced multiple cards.
2. The card was based on an open architecture thereby not locking UF to specific card readers.
3. For most services, on-line, real time data was accessed on a central database on UF mainframes.
4. If the card is lost, a new one could be issued with a different version number, rendering the original card useless.
5. Students and employees were conditioned to use one card for multiple purposes.

Limitations of the pre-1994 card included the following.

1. The manufacturing process was imprecise and sometimes required staff to sand down imperfections to ensure card readers could read the cards.
2. The encoding of the magnetic stripe was in a proprietary format and, therefore, could only be used on-campus.
3. The cardholder's SSN was printed on the face and encoded on the magnetic stripe of the card, creating privacy issues.
4. The card could not be tied to any financial aid funds. UF used the Net Check system whereby UF would issue checks to any student with excess financial aid funds not used for tuition and fees.

Vision for the new card

When UF was planning to replace the Pre-1994 card, it had several goals it was trying to achieve.

- Maintain the open architecture which allows for growth of other applications for the card.
- Provide shared data to campus-wide service centers and develop more services through the availability of data.

- Enhance convenience and security for card holders.
- Add more financial capabilities.
- Maintain compatibility with existing applications.

Closed versus open card model

UF considered implementing a closed card system, similar to that implemented by Duke University. In the Duke model, the card can be used on-campus and at select off-campus vendors, such as local pizza parlors. A closed network offers a captive audience and a high level of control. To allow the cards to be used by off-campus vendors, UF would, in essence, be acting as a financial institution, maintaining account balances for off-campus purchases. As such, UF would be subject to certain banking regulations such as Regulation E, the federal regulations governing electronic funds transfers (EFT.) The state of Florida determined that on-campus financial transactions, however, would not require UF to comply with banking regulations as these account “balances” would be considered pre-payment for services. Therefore, if UF implemented a closed network card system, it would have only allowed on-campus transactions.

UF also considered implementing an open network card system which would allow access to commercial banking systems. An open network would provide more flexibility for the students. The president of UF favored an open network, forcing UF’s on-campus services to compete with commercial, off-campus providers on price, convenience, and service. In addition, financial aid funds could be deposited to the students account, alleviating some of the administrative burden placed on the bursar’s office to issue checks for excess financial aid funds. To add these financial capabilities to the card, UF decided it wanted to implement an open card system by partnering with a financial institution.

UF considered using a Visa or MasterCard check card which is a debit card that can be used over credit card systems and, therefore, more widely accepted than on-line debit cards. However, Visa and MasterCard have very strict guidelines on how their cards can and cannot be used and were not comfortable allowing UF to use the Visa or MasterCard logo on a student card.

Chip Versus Stripe Card

UF considered implementing a stored value chip card. However, UF could not think of an application that would require chip card functionality and justify its costs. The only way UF would use the chip card is to store value on the card and, therefore, the chip would simply be a fancy junk stripe. UF has thought about using the chip card for storing medical records or academic transcripts, however, there are no standards on how information should be stored on the chip. Until the technology matures and there are partners using the technology, UF does not anticipate implementing a chip card.

III. Features of the Gator One Card

In 1994, UF issued the Gator One card. Characteristics of the card include the items listed below.

- strong UF identity
- low coercivity magnetic stripe for debit card functionality
- high coercivity magnetic stripe (primarily for backward compatibility, e.g., parking lot readers, on-campus food services, vending machines) that accesses on-line, central data on UF mainframes
- color, digitized picture
- bar code used for library services

- SSN not printed on the front or encoded on the magnetic stripe
- financial transaction capabilities, on- and off-campus

The card number placed on the card is no longer the SSN. The number is randomly generated and links the card to the students' or employee's records on the central database. The first 6 digits of the card, 600860, is an American National Standards Institute (ANSI) registered number, uniquely assigned to UF.

Debit Card Features

If the student chooses, the Gator One card can also be a standard debit card. Approximately 40% of students choose to use their cards as a debit card. The card is linked to a demand deposit account (DDA) at Barnett Bank. UF chose Barnett Bank as its partner because Barnett was already providing UF with commercial banking services. Because of this relationship, UF was able to modify its existing contract rather than going through the entire procurement process, i.e., issuing a Request for Proposal (RFP), evaluating proposals, etc.

For students choosing to use the Gator One card as a debit card, UF produces the card and encodes the high coercivity stripe for on-campus uses. The student then takes the card to any Barnett Bank branch to encode the low coercivity strip. The low coercivity stripe has three tracks, one which is not used by Barnett Bank. UF has not yet found a purpose for this extra track.

When the card first came out, Barnett Bank required that the card numbers and the Honor (the debit card network) logo be embossed on the card. Barnett felt this was necessary so that merchants could process the cards manually using carbon copies or if their point-of-sale (POS) terminals were not working

properly. Today, the card number is imaged, not embossed, on the card. The risk of POS terminals not functioning properly is low, and the embossing caused some problems with UF's on-campus magnetic stripe readers. In addition, the Honor logo is no longer placed on the card by the bank.

Barnett Bank has required that specific verbiage typically found on credit and debit cards be printed on the back of the Gator One card, including a statement that the card is the property of Barnett Bank. Barnett Bank states that the Honor network requires such statements. Based upon other cards that UF has seen, it would like to modify these statements on the next card.

UF issues personal identification numbers (PINs) for students to access their personal information that UF maintains. The PIN that authorizes use of the debit card is maintained separately by the bank. The student can choose to have the same numbers for both their UF and debit card PINs, however, the PINs are still separately maintained by UF and the bank. UF does not maintain any banking information.

UF can deposit excess financial aid funds directly to the student's account rather than issuing a check. UF sends a letter and statement to the student itemizing how much money is deposited to the account. Approximately 50% of financial aid funds disbursed to students are through EFT.

IV. Relationship with Barnett Bank

When the Gator One card was first issued, Barnett purchased all the necessary equipment for UF to produce the cards. The only equipment for the pre-1994 card that was reused by UF were the digital cameras.

UF agreed to share card fees with Barnett Bank in return. UF charges students and employees \$10 for the initial card and \$15 for replacement cards. (For employees, the fees were paid by

the Provost's office.) UF used the revenue generated from these fees to repay Barnett Bank for the equipment purchased.

Barnett Bank has an exclusive right to convert the Gator One card to a debit card. For every active account, Barnett Bank provides UF a monthly fee. Also, Barnett and UF jointly participate in advertising and promotional activities.

Barnett Bank is probably making little, if any, profit on the Gator One card. Generally, students maintain relatively small balances. Barnett views the Gator One card program as an opportunity for future, more profitable business. Once students graduate, they may stay with Barnett, accumulate larger balances, need a loan for their first car or home, etc.

UF has thought about allowing other banks in addition to Barnett Bank to provide debit card services for the Gator One card. However, the administrative burden of maintaining cards with multiple banks did not warrant the potential convenience offered to students. For example, every time a student wanted to change banks, UF would have to issue a new card to the student. In addition, having multiple bank partners would dilute the marketing and publicizing activities associated with the single bank card.

V. Debit Card Transaction Flows

On-Campus Debit Card Transactions

All UF sites that accept payments, e.g., the bookstore and the bursar's office, can process all types debit cards, not just the Gator One card. (Some schools choose to only accept their own card for on-campus purchases to increase usage.) Barnett provided UF with the POS terminals as part of their commercial banking agreement. UF is charged \$.07 per transaction. UF also accepts Visa and MasterCard at certain locations, for

which Barnett is the acquiring bank. UF pays a 2% interchange fee to Barnett.

Students cannot use credit cards to pay for tuition and fees at the actual bursar's office. The state government of Florida requires that the full amount of the tuition and fees be accepted from students. When accepting tuition or fees using a credit card, UF is responsible for paying interchange fees which equates to a percentage deduction from the full amount due to the state. The state views this as a surcharge. UF cannot pass the interchange fees to the students since the credit card payment associations do not allow merchants to pass the interchange fees onto the consumer. Payment associations do, however, allow merchants to charge a "convenience" fee in some situations. Therefore, UF has installed kiosks throughout the campus where students can use their credit/debit cards to pay for tuition and fees, and they are charged a nominal fee to cover interchange expenses. Students and parents can also pay for tuition and fees via phone. UF charges a convenience fee for this service as well.

UF accepts debit cards for payment of tuition and fees at the bursar's office. The flat fee charged for debit card transactions is not considered a surcharge by the state government of Florida. UF pays Barnett Bank a flat fee for each check that it deposits, and the debit card interchange fee is considered a similar cost of doing business rather than a surcharge.

VI. UF Card Operations

UF has an office devoted to producing and maintaining the card. UF purchases blank card stock which includes the UF logo, the Gator One logo, a blank low coercivity magnetic stripe, a blank high coercivity magnetic stripe, and the preprinted statements required by Barnett bank on the back of the card. The student or employee completes a form that

allows the card issuing office to access the student's/employee's records on the central database. Once the student/employee is verified, a digital picture is taken. The card printer then produces the card, imaging the digital picture, bar code, and number on the card. The card number includes a version number which is sequential. If a cardholder loses a card and requests a replacement, a new version number is embedded in the new card number, the database is updated, and the old card is rendered useless. Once the card is produced, the high coercivity stripe is encoded on a separate machine. UF just purchased an integrated printer/encoder and will be implementing it in the near future.

As stated earlier, to activate the debit card features, the cardholder takes the card to any local Barnett Bank branch to encode the low coercivity magnetic stripe.

VII. UF Perspective on a Financial Aid Card

Some features that UF would like to see in an "education card" include the following.

1. UF would like to see financial aid excess funds to be disbursed directly to the student while still ensuring that the school receives its collection amounts (the amount the student owes UF for tuition and fees.) The latter could be achieved by UF sending the fund source a file describing how much UF should receive and how much should be disbursed directly to the student. This process would significantly reduce UF's administrative costs related to the Net Check System.
2. UF does not want to require students to physically swipe the card at the bursar's office. With 42,000 students, UF is already challenged to process all its tuition payments at the beginning of the semester. In this regard, an off-line debit card would probably be preferred as no PIN is

necessary, and, therefore, would not require a physical swipe of the card.

3. UF would like to see some sort of activation mechanism for the account. Currently, Barnett Bank requires the student to change the PIN (default is the student's birthday) before the debit card is activated.
4. UF would like to see some feature that would allow schools or fund sources to recapture financial aid funds should the student drop out.
5. UF would like the student to deal directly with ED to return Direct Loans rather than require UF to process the returns.

Several concerns were raised by UF in respect to an education card.

1. Students who live off-campus would need access to the funds via checks for living expenses, such as rent, that traditionally cannot be paid with cash or a card.
2. The education card process should leverage an existing card or bank account. UF is concerned that requiring students to maintain multiple cards and accounts could prove confusing and cumbersome. In addition, many schools have significant investments in their cards and card infrastructures. They would probably be reluctant to give up their cards for a federal card. (One option could potentially be that the schools encode an unused track on their existing card's magnetic stripe on the fund source's behalf that would allow their cards to access financial aid accounts.)
3. The presence of "big brother" may also impede card usage since students may feel that the government and school could potentially know exactly when, where, and how much money is spent.

4. The idea of depositing financial aid funds to a DDA account rather than a card account and allowing schools to debit these accounts arose. To do so, however, the schools would have to maintain student-level banking information such as routing numbers, bank account numbers, etc. In addition, allowing schools to access a DDA account would require the school to obtain the students' expressed permission per ACH operating rules adding more administration burden for the school.
5. An education card could require some changes to UF operating procedures. Currently, UF, in essence, operates under just in time disbursement. UF runs a batch process during the night and determines what the overall drawdown amount should be. The following day, the funds are received and UF disburses the funds to the students. However, the drawdown request is not itemized at the individual student level. The student level reporting is conducted after the fact. With the education card, the funds request by schools could require student level information.
6. Replacement of lost cards could potentially be a problem. Most students live on very tight budgets and require continual access to their funds. If replacement cards cannot be issued immediately, this may harm the students.
7. How will PLUS loans be handles with the student card?
8. How will students and schools know when, to the day, funds are available on the card accounts?

APPENDIX F – BIBLIOGRAPHY

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