

Effectiveness Through E-Payments

Current Learning and Suggested Best Practices

Prepared by the NECCC Digital Case Law Work Group



NATIONAL ELECTRONIC COMMERCE COORDINATING COUNCIL

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NECCC is a national think tank of public and private sector leaders
working to identify and develop best practices for e-government.

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Executive Summary

In May of 2004, the NECCC called for nominations for the Effectiveness Through E-Payments Awards. To be eligible, projects must have been implemented an electronic payment or receipt application by April of 2004; demonstrated revenue maximization, cost savings or cost containment; and presented the opportunity to be replicated by other governmental entities.

E-payments are the heartbeat of many e-government applications today. In order to transact business electronically with citizens, employees, other governments, and businesses, governments must develop secure ways to transfer value. Because citizens are skeptical about the security of electronic transactions, payment applications must convey competence and reliability through an easily navigated user interface.

Many of the nominated projects were facilitated through public/private partnerships and used a variety of channels to reach the public including Internet, Interactive Voice Response (IVR), kiosks and point-of-sale. E-payment applications consistently demonstrate value for their jurisdictions.

Every nomination contained an innovation or interesting application of the technology. The aggregate cost savings, cost containment and revenue maximization represented over \$186 million. Nearly half of the nominated projects were implemented in six months or less. Several states made their applications available to local governments. Over 60 percent of the nominations employed credit cards, and over half of those charged some kind of convenience fee. In almost every case, the e-payment application was enterprise wide, i.e. across the jurisdiction.

Reconciliation of e-payments into backend financial systems created the most problems for nominees. Insufficient fund e-checks were equally troublesome for some. However, in both cases, most nominees overcame the problems with highly automated applications that provided timely and accurate information when problems occurred. Most nominees cited the need to involve all the stakeholders in the design and testing process and especially benefited from the support of the chief executive officer. This paper also contains many other lessons related to common project management best practices.

New York City's NYCserve ePayment Project was the **grand prize winner**. This project streamlined three key business processes for the city. Citizens can pay bills and access information about their accounts over the Internet, at a kiosk, at point-of-sale or via IVR. In 2003, the system processed 1.9 million receipts for a total of over \$6 billion.

Indiana Department of Revenue's ePAY application received an **honorable mention** from the judges. This system allows taxpayers and customers of the state of Indiana to pay taxes and fees choosing among four

options to pay. Indiana's system linked improved customer satisfaction to more timely payments, lower costs and increased revenue collection.

The United States Department of Agriculture received an ***honorable mention*** for the Electronic Benefit Transfer (EBT) system implemented in every state in the nation. EBT reduced supply-chain costs, improved accounting and resource management, and reduced fraud. Clients and merchants recognized benefits as well.

The Virginia Department of Taxation's QuickPay and other ePayment channels received an ***honorable mention***. QuickPay was introduced to help citizens take advantage of a Tax Amnesty Program, but was so successful that it was rapidly incorporated into a standard Virginia e-government channel.

The world of electronic payments and receipts is constantly changing and affording government new and better ways to serve citizens. Emerging practices in e-payments such as e-billing, Check 21, payroll cards and electronic checks are among the latest innovations.

Introduction

In the last five years government has made significant progress in allowing citizens and businesses to exchange value electronically. E-payments are the heartbeat of this transformation. Five years ago, governments had few, if any, applications that accepted credit cards. Today their acceptance is commonplace. Electronic checks, debit cards, EBT and electronic funds transfer (EFT) are other tools available through a variety of delivery channels including Internet, IVR, kiosks and even point-of-sale. Electronic payments and receipts improve the timeliness and quality of transactions and improve access to financial data for analytical and historical purposes. Improved voluntary tax compliance results when citizens are allowed to conduct business at their convenience and with their preferred financial instruments.

The National Electronic Commerce Coordinating Council solicited nominations in the spring of 2004 to identify and celebrate some of the best practices in e-payments. Nineteen nominations were received from federal, state and local governments. In almost every nomination there was a jewel of innovation or insight that will serve to advance the practice of electronic government.

Not all applications quantified benefits in terms of dollars. For those that did, the aggregate cost savings, cost containment and revenue maximization represented over \$186 million. The USDA application identified substantial supply chain savings from the implementation of EBT, but did not extrapolate the per transaction savings across the nation.

Remarkably, nearly half of the nominated projects were developed and implemented within six months. Short lead times make these projects attractive to elected officials who enjoy good press from quick wins.

Most e-payment applications were designed to serve the entire enterprise, i.e. jurisdiction. Usually the state's fiscal agent was a key player in the implementation. In some cases, the e-payment utility was made available *across* jurisdictions.

Over 60 percent of the projects employed credit cards, and over half of those charged some kind of convenience fee. In the remaining credit card applications, the agencies absorbed the credit card fees into their budgets or used an external credit card processor. Other popular payment mechanisms were e-checks, EBT and EFT.

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Hallmarks of Excellence

In addition to some well-documented cost benefits, many of the applicants cited the benefits of the businesses and citizens on the other side of the transactions. Whether the merchant at the bait shop who no longer has to spend time to process a hunting license, or the hunter at the kiosk who doesn't have to wait in line, Americans benefit from electronic transactions that are easy to use and trustworthy.

Although replacing paper based transactions that were key entered into accounting systems with electronic transactions that are interfaced to accounting systems was challenging and involved many stakeholders, most jurisdictions created superior reconciliation processes that are fully automated.

Security and privacy were of paramount importance. Some applications were designed specifically to convey a secure environment in order to inspire user confidence. Of course, the transfer of money demands the utmost in reliability and accountability. Building a single, robust application to serve the enterprise eliminates the risk associated with multiple processes developed by agencies with various levels of competency.

Most nominated projects were developed through a public/private partnership. In some cases the public sector partner retained ownership of the application, and in others the government entity obtained a perpetual, non-transferable license. In every case, the projects demonstrated value for their jurisdiction.

Because there were usually multiple diverse stakeholders, including businesses and citizens, projects needed strong executive support (often from the governor in states), an enterprise view and excellent project governance. Most projects had significant cross boundary involvement, usually across agencies or departments, but sometimes across jurisdictions.

Highlights from Individual Nominations

- **Customer Service – Michigan** created Self Serve EZ-License Kiosks was to serve customers who did not have Internet access at home or work. The implementation has also provided relief to license agents like sporting goods merchants who were freed from the task of issuing manual licenses.
- In **Massachusetts**, the Department of Revenue's WebFile for Business was designed to reduce the cost of processing tax payments and to provide taxpayers with an on-line history of their tax payments. Tax payers are responding favorably.
- **Business Case Development – The Tennessee** State Portal was designed to provide a common look and feel for Tennessee State Governments Web sites. To prioritize the order for implementing

transactions, Tennessee employed an Activity Based Cost model to estimate and compare benefits of moving various transactions online.

- **Better Data Management - Pennsylvania** decided to redesign their unemployment compensation payment system instead of just fix it for Y2K. In addition to providing direct deposit benefits, Pennsylvania put electronic transaction information on-line, saving state workers time in researching claims, and improving the quality of the results.
- The **District of Columbia**, Office of Finance and Treasury implemented Automated Clearing House (ACH) payments for Medicaid suppliers. The change improved the integrity of the system by insuring in real time that suppliers were active and in good standing with the district's Department of Health.
- **Managing Credit Card Companies – Indiana's** Web Payment Portal was designed to provide a robust, secure, versatile and comprehensive payment system for Indiana state government. To insure the best rates from credit card companies, Indiana issued a request for proposals in 2003 to leverage their buying power. They successfully lowered their fee.
- In **Utah**, the State Tax Commission's Payment Express was designed to accept tax payments. Some citizens and businesses with really high tax bills would be hurt by the 1-2 percent fee charged by credit card companies. Utah wanted to use tiered convenience fees, i.e. higher value transactions would have either a fixed fee or a smaller percentage fee. One contracted company could not accommodate the tiered fees, and was eliminated as a payment option.
- **Code Reuse – Delaware's** Online Licensing system benefited from the use of a single "book shelved" application program interface (API) that allowed agencies to write their own programs to interface with a variety of pre-programmed features through a single robust interface.
- In **Texas**, TexasOnline developed a system to license a myriad of professionals across multiple agencies. To do this efficiently, TexasOnline designed the system to capitalize on the similarities across licenses for a base application and interface, then deal with peculiarities as necessary.
- **Automated debits and e-checks –** The state of **Tennessee's** Debit ACH for Utility Payments project reduced late charges for payments to multiple vendors after introducing an automated debit process. Well-designed control processes insure accurate payments and adequate reconciliation.
- The **Florida** Department of State implemented Florida Corporate Filing and Payment Project to accommodate online filings and reduce the volume of papers submitted for manual processing. E-checks

were eliminated as a payment option when Florida experienced problems with insufficient funds in the payers' accounts.

- ***Interesting authentication techniques*** – When the **Idaho** Transportation Department implemented its online Full Fee License Renewal to improve customer service, they adopted the state's enterprise-wide "single sign-on" identification verification system. Users only need to enter their username and password once to access a host of state services. The "single sign-on" also allows for a unified bill for services.
- **West Virginia** Department of Natural Resources introduced the goWild! E-Licensing System to deliver licensed privileges to residents and non-residents. Concerns about fraud were addressed through the use of an encrypted code printed on the license that can be decoded for authentication purpose by law enforcement personnel using PDA's.
- The **Ohio** Secretary of State's Online Certificates of Good Standing offer Ohio business to apply for and receive these certificates twenty-four hours a day seven days a week. The certificates are required by lending institutions. Concerns about counterfeiting were allayed when the department accompanied each certificate with a validation number that could be accessed on line to verify its authenticity.
- In order to inspire confidence in its users, the **Kansas** KanPay Payment Engine a logo from the sending application is integrated into and display on the KanPay user interface. User feedback indicates the feature was important in increasing adoption rates.

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Lessons Learned – Risks

Many nominated projects cited early problems reconciling payments to existing accounting systems. All advised more work up front to insure that existing accounting controls are taken into consideration. Audit trails, distribution of credits and debits to participating agencies and satisfying the concerns of the chief financial officer are important criteria for success.

The most frequently cited lesson learned was the need to keep business partners, internal and external, closely involved throughout the entire project. Some nominees included citizen users in focus groups; all cited the breadth of stakeholder involvement in payment systems and the need to be comprehensive in design. Without stakeholder involvement from design through implementation, key needs can be left unaddressed.

Seventy-five percent of nominees indicated that credit card fees have not prevented them from launching e-payments projects. Eighty-five percent who used credit cards in their nominated project said the fees were not an obstacle. Of course, these statistics reflect a population that, by definition, successfully launched e-payment projects. There is a lot of anecdotal evidence of projects that were never launched because of the “chilling effect” of credit card fees, therefore never having the opportunity to appear as nominees for this competition.

Several nominees cited the need for 24-hour, seven-day-a-week support staff or services as a problem they failed to anticipate. Customer relationship management assumes a different, but very important role when interaction is not face-to-face.

Nominees advised adopters to prepare business partners for the likelihood that their processes will change.

Some nominees encouraged a well-defined scope for the project. This will help result in a more accurate estimate of the timeframe and the resources required. Make sure the timeframe is realistic for the scope.

To produce quick wins and build support, start small and grow.

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Award Winners

Grand Prize Winner

MUNICIPAL: NEW YORK CITY NYCSERV EPAYMENT PROJECT

Government Organization: New York City Department of Finance

Respondent's Name: Dina Desiderio

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Telephone Number: (212) 361-1992

The NYC Serv application streamlines and integrates three key business processes for the city of New York - processing payments, conducting adjudication hearings, and tracking towed vehicles. It has four separate revenue "channels" – walk-in/mail-in payment centers, Internet, interactive voice response (IVR) and kiosks. The system processed 1.9 million receipts for a total of over \$6 billion in 2003. Citizens can make payments with a single transaction for parking tickets, tow releases, environmental violations, property taxes, business taxes, health and consumer affairs violations and licenses/permits, water bills, and several other items.

The NYC Serv application integrates the legacy systems of six city agencies. Most of NYC Serv is custom-built, using Java 2 Enterprise Edition (J2EE), including Enterprise Java Beans (EJBs) and Java Server Pages (JSPs). It runs on a WebSphere Application Server with a DB2 database. It was developed by an integrated team of approximately 20 percent Finance Department staff and 80 percent IBM staff.

The application acts as a unified front-end to six different legacy systems. Queries for outstanding charges, as well as payment histories, are run against these systems using ECI, EntireX and Host Publisher. The legacy systems are updated with payments and other data through the same methods, as well as some end-of-day batch file processing, which includes posting end-of-day summaries to the city's general ledger system. A COTS application, Access2Gov (A2G) is used for cashiering all four channels.

NYC Serv also includes a custom-built revenue management system, including research, reports, automated reinstatement processing, automated credit card charge-backs, and automated general ledger/cash receipts. In each case, the city's legacy systems are updated by NYC Serv, either online or through batch file processing. A Lightweight Directory Access Protocol (LDAP) server controls all user entitlements, and all significant user actions are logged. These logs can be viewed through a custom-built administration function.

Reasons for Creating the Program

NYCServ was created by the city of New York to consolidate and streamline payments and adjudication functions offered by various city agencies. Its specific objective was to achieve financial efficiencies and improve customer service. The system was developed under the stewardship of the Department of Finance, which has substantial experience in managing complex multi-agency projects.

NYCServ has opened three new public revenue channels: Internet, IVR and kiosks. These new channels accounted for over 750,000 transactions, or 30 percent of all payments processed through NYCServ in 2003. The other 70 percent are walk-in and mail-in payments. This shift in payment source has significantly reduced the workload of customer service representatives and cashiers in payment centers.

The new public channels have increased customer service by allowing citizens to make payments and review outstanding charges/payment histories at their convenience. Citizens also use the public channels to locate towed vehicles, view status of payment agreements, check for credits, and view decisions made in hearings. These activities reduced the number of calls placed to the city's help desk, and the number of visits to payment centers.

Before NYCServ, each agency had its own legacy system, and cashiers had to be trained on each one. Each city payment center could only process payments for some subset of the agencies involved in NYCServ, so a citizen might have had to visit several different centers to make payments. NYCServ is a unified front-end to all of these legacy systems; each cashier can process payments for all agencies.

NYCServ automated several business processes, including processing reinstatements and credit card charge-backs, updating the general ledger/cash receipts, creating controlled forms (such as tow releases and registration clearances) and reconciliation.

A key design feature of NYCServ is a consistent user interface and process regardless of the payment channel used.

Process Employed

The NYCServ design solution began with a proof-of-concept for integrating six legacy systems and four payment channels to increase the amount of revenue collected, and make it easier for citizens to pay. IBM conducted usability studies to ensure the system would be easy to use. Best-practices architecture was employed to ensure stability and scalability.

The NYCServ project began in May 1999. It was one of the first major J2EE applications developed by the Department of Finance. The extensive use of EJBs and JSPs was very innovative. Another key design

decision was to build reusable objects for back-end business processing, and to separate presentation layers for each payment channel. This decision has made it much easier to maintain and modify NYCServ.

The complexity of NYCServ prolonged its development time. However, since a primary objective was to start accepting online payments as soon as possible, a simplified version of the Web site was completed very quickly. This first version accepted payments only for parking violations and used a third-party credit card processor (govWorks, Inc).

The NYCServ Web site now accepts payments for parking violations, property taxes, water charges, environmental violations, and business tax. It also shows users their payment histories. The Web site uses three different payment methods – credit card payments processed by NYCServ, credit card payments processed by a third party (Official Payments Corporation) and electronic checks (e-checks) processed by a third party (Intell-A-Check Corporation). The strategy of using govWorks temporarily at the start opened up a new revenue channel very quickly, but afforded the flexibility to switch to other payment methods and to add other agencies as the project progressed.

Discoveries Made

Several discoveries were made in the area of human interface.

Public interfaces must be as simple and intuitive as possible, and instructions must be succinct. An electronic payment system must offer a pleasant online experience as well as robust security features. Equally important is a live help desk citizens can call if they experience any difficulty using the Web site.

At the beginning of the project, the Finance Department had doubts about whether city residents and businesses would be willing to pay property taxes using electronic checks. Since then, however, NYCServ has accepted online payments for several million dollars over the Internet. The public also seems willing to pay large fees for the convenience of paying online by credit card or electronic checks.

NYCServ found robust security to be absolutely essential for a high visibility government payment portal. During the development process, a number of vulnerability assessments were conducted to ensure the portal would be safe from hacking attempts. As a result, the security features put in place before implementation helped foil the numerous hacking attempts NYCServ has experienced since then.

Economic benefits of the payment portal are based primarily on estimates of the costs avoided by processing transactions online. In addition, the convenience of round-the-clock online payment processing might have brought in payments that might not have been made promptly, or at all, if the only choice available was to pay in-person.

Problems Encountered

A design objective of NYCServ was to mask the complexity of the system and to make it simple and intuitive to use. The development team deployed innovative techniques to provide a satisfactory payment experience to citizens while resolving technical issues encountered during development and implementation.

Reliability of Web messages was one of the issues that arose during implementation. NYCServ Internet uses HTTP with SSL (HTTPS) to exchange messages with payment processors. Although messaging is almost totally reliable, the occasional message is lost in transmission. If this message is a payment approval, the payment might be completed even though NYCServ treats it as a timeout. To avoid this possibility, NYCServ has built in a monitoring system that sends pages and e-mails to technical staff if responses are not received from the payment processors. This monitoring system provides an immediate resolution, with no impact on the users.

The NYCServ team learned there is no substitute for a controlled field test of an application with a large user base. Even extensive acceptance testing could not simulate actual portal usage. As a result, the team decided to implement the function of the portal iteratively, to learn from each iteration, and to incorporate findings into new releases – a strategy that helped ensure a successful rollout.

Department personnel and managers involved with payment functions developed requirements for the portal. A lesson learned from implementation is that it would have been useful to conduct focus groups of actual users of the system to validate these requirements. A focus group would have revealed a need for the payment portal to support Apple and AOL as well as Netscape and Internet Explorer, for instance.

Credit Card, ACH and Bank Fees

Credit Card Fees. Convenience fees are charged on the card-not-present payment channels – the Internet and IVR. Parking violation payments are processed through NYCServ's own credit card solution, with a convenience fee of \$2 per violation. This fee offsets the city's credit card fees, fraud, and charge-back processing.

Payments for all other items (property taxes, water charges, environmental violations, and business taxes) are processed through third-party payment processors. Official Payments Corporation (OPC) is used for credit card payments. Required payment information is passed to OPC via XML over HTTPS, and an approval or decline is returned. OPC is the merchant for these payments, handling all payment processing, credit card fees, fraud, and charge-backs. OPC charges a convenience fee based on a graduated fee schedule that is designed for payments of large amounts, such as property taxes. This fee is fixed for amounts less than \$1,000, and set at either 2.5% or 3% for amounts equal to or greater than \$1,000.

ACH or Bank Fees. Intell-A-Check is used to process e-check payments for property taxes, water charges, environmental violations, and business taxes. Payment information is passed to Intell-A-Check through Web Services, and an approval or decline is returned. Intell-A-Check handles all the ACH processing of these payments, and sends a batch file of returned checks to NYCServ each night. NYCServ processes the returned checks file automatically, and posts the reinstatements to the appropriate legacy systems. NYCServ pays for Intell-A-Check's services by charging a \$2 per-check convenience fee for e-checking.

Project Timetable

May 1999	The NYCServ project was initiated. The first year was spent in requirements gathering, design, architecture, and negotiating the involvement of various city agencies.
May 2000	Development work began in earnest.
Nov. 2000	The first version of the NYCServ Web site went live. The Web site included back-end integration to the parking violations legacy system. Payments were accepted through govWorks, which handled all financial management.
Jan. 2002	The main part of the NYCServ payments application went live. This included the client application used by the cashiers and customer service representatives in the payment centers to process the walk-in and mail-in payments, the A2G cashiering piece, the integration to the six legacy systems, and all the back-end processing. The NYCServ back-end processing includes online reconciliation by the cashiers, daily financial reports for reconciliation, ad hoc reports, processing of "no good check" returns files, processing of credit card charge-backs and creation of daily cash receipts files that are processed by the city's general ledger application, forms management, activity logs, and payments research.
July 2002	The second major version of the NYCServ Web site went live, bringing all the parking violations payment processing in-house. Financial management was taken over by the processes that went live in January for the walk-in and mail-in payments.
Dec. 2002	The kiosks went live. The kiosks use the same back-end processing and business logic as all the other channels, with a presentation layer tailored to touch screen kiosks.
2003	The other participating city agencies went live on the Web site, and e-checking was added.

Project Outcome

The outcome of the NYCServ project is a robust, stable payment system, which has opened three significant public channels (the Internet, IVR and kiosks) that process 31 percent of all payments. Processing such a large volume of payments through the public channels has saved a significant amount of money, and has enabled the city to redeploy staff to other important tasks. The custom-built solutions to automate daily tasks have resulted in significant time and cost savings. The end-of-day reconciliation processes followed by the cashiers and accounting staff are many times easier and less error-prone. The automated processing of “no good check” returns files and credit card charge-backs has replaced manual processes using paper reports to update the legacy systems. Automated cash receipts have similarly replaced a manual process for submitting general ledger entries.

Customer service has improved in many areas. The public channels have given citizens more convenient choices when making payments to the city of New York. Consolidating several city agencies’ payment systems into one has reduced confusion and frustration for citizens seeking information or making a payment.

The potential for fraud within the city staff has decreased significantly. All actions are logged with the user ID, date and time on NYCServ. Several actions also require a supervisor override, where the supervisor enters a user ID and password. The amount due for “controlled” forms, such as towed vehicle releases, is automatically calculated by NYCServ. This follows NYCServ’s general trend of embedding the business logic in the system instead of relying on the users to know the business rules and enforce them.

Quantification of Results

NYCServ processed 1.9 million receipts for a total of over \$6 billion in 2003. Every participating agency is projected to process many more payments in 2004. The public channels (the Internet, IVR and kiosks) account for 31 percent of the payments.

Partnerships and Cross-Boundary Collaboration

The New York City Department of Finance entered into a close partnership with IBM for the NYCServ project. The city’s IT staff worked closely with the company from the first day of the project. With mentoring from IBM, the city’s staff developed the expertise to eventually take over the maintenance and ongoing enhancement of NYCServ. Staff members have become experts in J2EE, WebSphere, DB2, LDAP, and A2G through this partnership.

Several groups within the city crossed boundaries to make NYCServ a success. Within the Department of Finance, several groups (Parking Violations Office, Marshal’s Office, Sheriff’s Office, Property Taxes and Business Taxes) came together to sponsor and champion NYCServ. Then, the Departments of Environmental Protection, Health and Consumer Affairs and the Environmental Control Board committed to the application.

The Department of Finance worked diligently to learn the business and the legacy systems of the other departments. Perhaps more significant was the effort to make sure that the other departments were fairly represented and had an equal voice in the design and development of NYC Serv.

In December 2002, the addition of another agency, the City Register, gave testimony to NYC Serv's ability to cross boundaries, as well as to expand and scale, the City Register's Office developed a new document management system called ACRIS, and wanted to use NYC Serv to process payments. A solution was developed to use MQSeries to deliver payment messages to ACRIS in real time. Today, all ACRIS payments are processed through NYC Serv.

Replication

There are many ways to replicate this project, or specific parts of it, in other governments. The main principles of NYC Serv – consolidating the payment processing of several agencies or departments, opening public channels, and automating financial management processes – can be applied in any government. In replicating NYC Serv, it would be best to prioritize components of the system, and proceed step by step. With a robust payment engine like the one in NYC Serv, agencies/departments and channels can easily be added one by one.

Software Availability

The custom-built NYC Serv software is owned by the city of New York. The A2G cashiering software is licensed by the city of New York.

Honorable Mention

STATE: INDIANA EFT-EDI

Government Organization: Indiana Department of Revenue

Respondent's Name: Roy D. Gabriel

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Telephone number: (317) 233-0621

The Indiana Department of Revenue's ePay, Motor Carrier Services One Stop Shop/Direct Access System and Indiana EFT-EDI allow taxpayers and customers to pay taxes and fees online, while ensuring that their payment information is processed quickly and accurately. The e-payments system allows Indiana taxpayers and customers to choose among four options to pay for taxes and services electronically. The Department of Revenue also offers direct deposit for tax refunds.

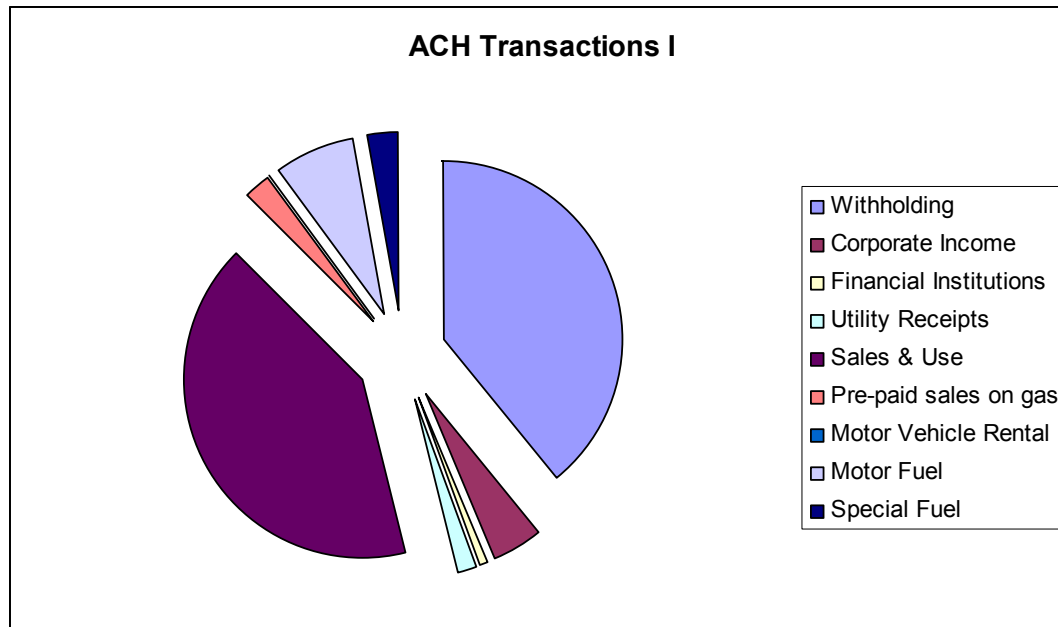
By creatively applying emerging technology to the revenue industry, the department has responded to taxpayer needs for efficient and convenient e-payment processing. The e-payments options available to Indiana taxpayers and customers include:

- **Credit Card Payment** for electronic and paper income tax returns, quarterly fuel tax payments, motor carrier fees, trucking licenses and permits, new business registration fees.
- **E-Check** for paying taxes and motor carrier fees quickly and easily 24 hours a day. This easy, secure online payment service permits credit card or e-check payment for individual income taxes, quarterly estimated taxes and other payments due to the Department of Revenue. More than 14,600 taxpayers used IN-ePay in 2003.
- **ACH Credit Payment** to transmit funds to the state's bank account in CCD+TXP format with an addenda record that credits the taxpayer's account. **ACH Debit** enables the department to debit an individual's bank account for a specified amount.
- **Electronic Data Interchange** (EDI) and **Electronic Funds Transfer** (EFT) enables businesses to file tax returns and remit tax payments via a PC software program developed by the department.

Reasons for Creating the Program

The Indiana Department of Revenue is committed to providing a level of service that promotes the highest degree of public trust and voluntary compliance. Providing simple, quick and readily accessible methods to conduct transactions and pay taxes is directly aligned with its mission and its commitment to customer service. Recognizing the public's demand for services comparable to those provided by the private sector, the Department determined to permit online payment wherever possible, and launched several system initiatives to integrate e-payments into existing and future systems.

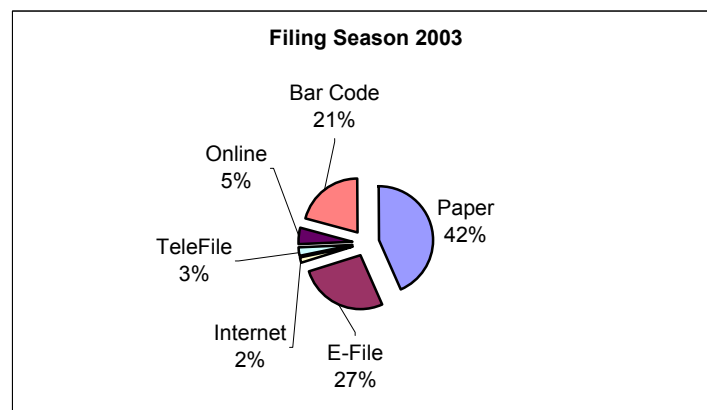
The Indiana Department of Revenue received over \$8 billion via e-payments options from nine different sources, as shown in the following chart.



Over \$8.2 billion was collected June 2003-May 2004 via electronic transactions including ACH debit, ACH credit, and Fed Wires for certain EFT-required tax types.

Tax Type	Number of Items	\$ Amount
Sales & Use	76,343	3,408,892,659
Withholding	356,674	3,218,994,602
Motor Fuel	2,350	604,847,689
Corporate Income	4,263	372,909,993
Special Fuel	370	218,558,398
Pre-paid sales on gas	4,182	196,435,569
Utility Receipts	617	145,144,780
Financial Institutions	547	66,944,519
Motor Vehicle Rental	3,155	582,204
Total	448,501	\$8,233,310,412

This chart shows the payment methods used in Indiana's 2003 filing season.



The following chart shows other electronic transactions by ACH credit.

	Collections	Individual	Cigarette Tax	IRP	IRS Offset	IFTA
Jun – 03	\$491,176	\$83,636	\$9,525,147	\$23,918	\$372,518	\$304,584
Jul – 03	\$486,436	\$182,783	\$8,789,906	\$801	\$106,385	
Aug -03	\$812,085	\$259,252	\$8,883,583	\$10,145	\$421,949	\$361,995
Sep – 03	\$502,840	\$133,042	9,579,900	76,985	101,864	
Oct – 03	\$799,992	\$127,426	11,849,633	224,015	74,568	
Nov – 03	\$628,683	\$74,969	5,815,646	111,483	1,502,618	
Dec – 03	\$777,219	\$96,723	7,753,928	2,237,659	49,391	
Jan – 04	\$928,245	\$131,557	7,705,616	1,670,265	31,429	
Feb – 04	\$1,009,773	\$185,452	6,531,204	4,451,454	421,860	
Mar – 04	\$1,125,214	\$264,158	9,402,034	1,164,902	1,746,159	
Apr – 04	\$2,317,939	\$3,014,015	8,721,527	1,259,685	872,379	
May - 04	\$1,249,012	\$118,326	\$8,522,207	\$594,835	\$653,026	
TOTAL	\$11,128,614	\$4,671,339	\$103,080,330	\$11,826,148	\$6,354,147	\$666,579

The following table shows the relative amounts collected by the State of Indiana through different types of payment from different sources.

Payment Type	Payment Source	Total Amount
American Express	Access Indiana	\$484,132
American Express	Official Payments	\$480,606
Credit	EFT	\$3,763,936,620
Credit	Government Center	\$156,298,084
Credit	Logan Building	\$1,600
Credit	Merrillville D.O.	\$226
Credit	Muncie D.O.	\$34
Debit	EFT	\$4,161,839,993
Debit	Logan Building	\$25
Discover	Access Indiana	\$351,176
Discover	Official Payments	\$219,458
E-Check	Access Indiana	\$3,027,011
Electronic Funds Transfer	Government Center	\$7,347
Electronic Funds Transfer	Logan Building	\$2,191,402
Fedwire	EFT	\$45,255,762
Fedwire	Government Center	\$265,311
Fedwire	Logan Building	\$29,495,817
Fedwire	JFK Building	\$2,383,581
MasterCard	Access Indiana	\$1,370,944
MasterCard	Logan Building	\$7,865
MasterCard	Official Payments	\$995,810
Visa	Access Indiana	\$1,691,049
Visa	AR Conversion	\$3,877
Visa	Logan Building	\$8,046
Visa	Official Payments	\$1,129,344
Total		\$8,171,445,116

Process Employed

The department reviewed online payment and collection methods and decided to expand its systems to be more responsive to its customers, increase the productivity and effectiveness of existing systems, and improve taxpayer compliance. Integration of e-payments into existing systems and processes with client/server technology coupled with Internet and Intranet capabilities was found to be the best solution.

The systems offer multiple ways to file individual tax returns: over the Internet, using a two-dimensional bar-coding, TeleFile (online filing system), and electronically with the IRS and paper filings. The department determined it was a natural fit to allow payments to be made by e-check, credit card, and electronic funds transfer. Additionally, providing Web-based processing for motor carrier transactions was also a natural fit for e-payments.

The goal was to increase payment collection through electronic processes and thereby increase voluntary compliance by making interactions with the department convenient, efficient, and comprehensive. The department and the citizens of Indiana benefited from quicker and more efficient payment collection and overall revenue maximization.

Indiana's e-payments processing incorporated two notable innovations: (1) The department worked with an Internet bank to develop a true electronic check that eliminates the need for a paper check. (2) The motor carrier system uses an "add to shopping cart"-type feature that allows motor carriers and carrier service companies to purchase plates, request credentials, obtain permits throughout the day and pay for all transactions via e-payment methods at the end-of-day.

Discoveries Made

The e-payments program has confirmed that there are direct links between better customer service and maximizing revenue collection and reducing processing costs. With implementation and utilization of e-payments, customer satisfaction increased, late payments decreased, revenue collection was realized earlier and cost of processing payments and bills was reduced significantly. As electronic tax filings and online motor carrier transactions increased, the number of e-payments grew exponentially. As the economy declined, the e-payment options enabled the department to continue to focus on improving customer satisfaction as a method to reduce cost and increase revenue.

The department also found that 48 percent of the online transactions occur outside of normal business hours; clearly, customers are taking advantage of the ability to conduct transactions 24 hours a day, 7 days a week.

Problems Encountered

The most important obstacles to success were developing transaction linkages with financial institutions to authenticate, accept and transfer e-payments. The department's accounting systems required modification to handle the new forms of payment transactions. The department researched e-payment financial partners and developed Internet services contracts with transaction fee arrangements to assist in getting the e-payment options operational. In addition, technical staff required training in the development of Web-based transaction processing systems.

Credit Card, ACH and Bank Fees

Credit card fees are paid by the cardholder. No other fees are assessed by the Department for using credit cards. E-check users pay a \$1.00 fee per check.

The department contracts out its EFT/EDI services for the processing business tax payments. These EFT/EDI services include but are not limited to ACH credit, ACH debit and fed wires. The current contractor is one of the Indiana's largest banks. ACH processing is accomplished through separate tax type accounts with zero balancing capabilities. A budget fund appropriation is available to pay for the various ACH transactions handled by the contractor.

The department does not adjust any fees or bank costs for the processing of ACH transactions.

Project Timetable

1996 The department began aggressively implementing the technology to increase electronic filing and direct deposits, depending on customer input to confirm that the e-payment process was convenient to users.

2001 Projects were initiated to install e-payments for handling ACH, credit card and e-checks online. Enhancement of the department-wide use of e-payment options is ongoing.

Project Outcome

All citizens of the state of Indiana have benefited in some way from the Integrated Returns Processing System and its e-payment options. Taxpayers benefit from lower-cost and more helpful government operations. The Legislature and Budget Agency benefit from the additional statistical information available and faster receipt of general fund revenues. Motor carriers benefit from real-time acquisition of operating credentials and the convenience of paying for services electronically. The department itself benefits from the ability to move payments, avoid and correct monetary payment errors faster.

The availability of e-payment processing options has fundamentally changed the way the department serves taxpayers and customers. Processes that were performed manually and tasks that were once cumbersome are

now automated and focused on helping taxpayers and customers manage their own transactions with the department.

Quantification of Results

Typically, the department establishes baselines prior to the implementation of new technology. As part of this process, the department identifies areas in which revenue can be enhanced, costs reduced and/or customer satisfaction enhanced. The chart below summarizes some of the revenue maximization and cost avoidance benefits that have been realized by Indiana's e-payment projects.

ePayment Transaction	Benefit Category	Baseline	Actual ('97-'03)	Gain
Withholding	Revenue Maximization	\$2,850,000,000	\$3,218,994,601	\$368,994,601
Corporate Income	Revenue Maximization	\$250,000,000	\$372,909,992	\$212,790,008
Financial Institutions	Revenue Maximization	\$50,000,000	\$66,944,519	\$16,944,519
Utility Receipts	Revenue Maximization	\$125,000,000	145,144,780	\$20,447,780
Sales & Use Tax	Revenue Maximization	\$3,000,000,000	408,892,658	\$408,892,658
Motor Fuel	Revenue Maximization	\$400,000,000	604,847,688	\$204,847,688
2D Barcode	Cost Avoidance	\$3,175,387	297,692	\$2,877,695
Increased ePayments	Cost Avoidance	\$2,400,000	5,950,000	\$3,550,000
Faster Processing of	Revenue			
Estimated Payments	Maximization	\$1,380,822	\$21,470,954	\$20,090,132

Partnerships and Cross-Boundary Collaboration

Several important partnerships were required to implement and operate the e-payment option services. The Indiana Treasurer's Office and financial institutions are key partners to completing the online transfer and receipt of funds. Utilizing e-payments has increased revenues by more than \$250 million over the past two years.

The state's Web portal, *accessIndiana*, is another partner, providing the transactional support to accept credit card and electronic check e-payments. The department continues to work with *accessIndiana* to offer new e-payment capabilities.

Replicability

Other states' revenue departments are now using versions of e-payment options to service their taxpayers and customers. The department freely shares information with other revenue agencies and frequently hosts visits.

Software Availability

Major components of the systems software are owned by the government and are available to other states. Some parts, such as Oracle or IBM license products, are not readily transferable.

Honorable Mention

FEDERAL: FOOD STAMP ELECTRONIC BENEFITS TRANSFER (EBT)

Government Organization: U.S. Department of Agriculture Food and Nutrition Service

Respondent's Name: Lizbeth Silbermann

Title: Acting Director, Benefit Redemption Division

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Telephone Number: (703) 305-2523

Food Stamp benefits are used by eligible recipients to purchase food at more than 145,000 stores licensed by the U.S. Department of Agriculture's Food and Nutrition Service (FNS) nationwide. More than 62 billion food coupons were printed to meet issuance needs between 1978 and 2002.

Today, electronic benefits transfer (EBT) offers an alternative to paper, operating like a debit-card payment system. Using EBT, a recipient applies for benefits at a local FNS office and eligibility/benefit levels are established. An account is created, into which benefits are automatically deposited each month. The recipient gets a plastic card, like a bank card, and a personal identification number (PIN). Most EBT systems use the same electronic funds transfer technology that many stores use for debit-card payments. Retailers get their payment through a settlement process at the end of the business day.

State agencies, with federal approval, procure customized EBT systems that piggyback on commercial practices and use standardized ANSI messaging formats. In most cases, the states do not operate these systems on their own hardware or own the software. Generally, they outsource the system, entering into service contracts that include the following components: account setup and benefit authorization, account maintenance, transaction processing, retailer participation, settlement, reconciliation and reporting. The states may also outsource card issuance, training and customer service, although some operate these functions in-house.

The selected vendor presents a design document for government review to ensure that the system complies with program regulations. Vendor systems are generally proprietary, but agencies that use the same vendor can operate EBT on a common platform. FNS approval is required, so prior to implementation FNS oversees an end-to-end acceptance test of the system.

Reasons for Creating the Program

FNS wanted to eliminate the cumbersome processes required by the paper system—printing, shipping, storing, redeeming, and destroying coupons—and the significant costs and logistics associated with them. Each year, billions of pieces of paper were issued to Food Stamp households. FNS was responsible for printing and storing coupons centrally and then shipping required inventories to the more than 4,000 state issuance points across the country.

At the height of the program in the mid-1990s, coupons moved through 186,000 retailers, then were deposited at more than 26,000 banks nationally. Banks routed the coupons to the Federal Reserve Bank, where they were destroyed. At each step in the process, coupons had to be accounted for, making the process enormously complex and labor-intensive.

EBT largely eliminated paper handling and allowed the accounting system to be automated. Early demonstration studies and findings by the National Performance Review and the Office of Technology Assessment supported EBT as a way to improve benefit delivery while eliminating a costly, cumbersome paper process. These studies enumerated both “soft” and quantitative benefits to the stakeholder community.

The FNS Office of Analysis and Evaluation offered favorable cost comparisons in a 1992 report:

	<u>Coupons</u>	<u>EBT</u>
Recipient out-of-pocket costs	\$ 2.21	\$ 0.27
Minutes spent getting benefits each month	48	13
Retailer costs for every \$1,000 redeemed	\$23.88	\$17.28
Bank costs for every \$1,000 redeemed	\$ 6.99	\$ 0.67

Process Employed

Beginning in 1981, FNS conducted systematic research to assess the feasibility of different technical approaches to EBT, measure their effects on major stakeholders and identify circumstances that promised cost-effectiveness. In 1983, FNS began funding a demonstration of one alternative in Reading, Pennsylvania. This demonstration, operational in 1984, was operated in-house by the state agency for a Food Stamp-only system. Specific objectives of the project were to assess administrative cost, benefit loss through error, fraud and abuse, and impact on retailers, recipients and financial institutions. The results of the demonstration were promising, but the operational model did not prove to be cost-effective.

FNS announced a new set of demonstrations in 1987, integrating EBT for food stamps and other assistance programs. Two (Minnesota and New Mexico) became operational in 1991. FNS also let a contract to test a smart card alternative in Ohio and allowed a voluntary EBT model in Iowa.

Finally, FNS published demonstration guidelines for state welfare agencies interested in starting their own EBT projects. Under these instructions, several states received FNS approval for their EBT test plans. These tests showed that turn-key systems for multiple benefit programs that were outsourced to companies with transaction processing services could be cost-neutral to the paper-based system. Based on the results, FNS published final regulations in 1993, detailing EBT system standards the states could employ as an optional alternative to paper coupons. The regulations allowed online EBT systems for all recipients in a project area, as long as the state could operate them cost-effectively. By 1996, 14 percent of program benefits were issued via EBT, and all states were planning EBT systems. As a result of this success, Congress mandated EBT implementation nationwide by 2002.

Discoveries Made

Early demonstration studies documented the improvements EBT offers. Studies that compared the costs of EBT and paper established that EBT is a viable, cost-neutral solution. Program stakeholders—recipients, states, retailers, and banks—prefer EBT for its more efficient operations, enhanced service and security. Retailers and banks prefer EBT because it eliminates the need for separate business processes to redeem benefits. Recipients appreciate the improved service offered by convenient access to benefits and greater benefit security. They no longer have to worry if benefits coming through the mail arrive late or are lost, as benefits are electronically deposited the same time each month. They no longer need to carry around coupons, risking loss or theft, because they can access their benefits electronically as needed. Finally, EBT minimized the stigma attached to program participation.

From a governmental perspective, EBT offers improvements in increased administrative efficiency and better accounting of program dollars. By eliminating coupons that could be lost, sold or stolen, EBT helps reduce fraud and benefit diversion. An electronic record of each transaction permits easier identification and documentation of trafficking (the exchange of benefits for cash or other illegal goods). In a July 2003 report, FNS found trafficking in the program had declined, due in large part to EBT. EBT also eliminates the need for cash change, along with the cumbersome and costly process required to maintain a paper system and FNS no longer has to commit resources to printing, transporting, safeguarding, distributing, and accounting for paper coupons.

Problems Encountered

Two major problems with EBT implementation could have derailed this effort: (1) insufficient stakeholder involvement and (2) “Regulation E” requirements.

Making sure that all stakeholders, particularly retailers and advocate groups, were part of the design and planning activities was integral to the project’s success. Two of the early demonstration projects were never

implemented due in large part to lack of retailer buy-in. The proposed electronic program was a radical change from paper delivery and raised concerns about system failures and ease-of-use.

The costs and service requirements associated with Regulation E were viewed by the states as prohibitive in a cost-neutral EBT system. Regulation E, which covers commercial debit cards, required mailing monthly statements to Food Stamp recipients and replacing benefits lost if a card or PIN were compromised. The Federal Reserve Board has since determined that Regulation E does not apply to the Food Stamp Program, so neither of these services is provided today.

Credit Card, Banking and ACH Fees

The cost structure for Food Stamp Program EBT is somewhat different from the commercial model. By law, recipients cannot be charged a fee to participate in the Food Stamp Program. Because of the way state funds are appropriated, states prefer having a set fee that can be estimated and tied to program participation trends rather than a fee structure based on variable recipient usage. Furthermore, the early cost-neutrality requirements forced states to calculate their paper costs on a per-recipient basis. In order to facilitate this comparison, EBT costs were historically calculated per-case, per-month, based on a monthly average 7-10 transactions per household. This is the model that is still most prevalent today.

State costs vary according to the state-specific level of service required. Cost drivers include the number of retailers that have to be equipped with point-of-sale devices and the level of training required, and card issuance and specified customer service. These costs are included in the monthly case charge and include transaction fees. FNS and the states share the Food Stamp Program administrative costs equally.

Project Timetable

There was a 20-year span (1984-2004) from initial conception until complete implementation of EBT for the Food Stamp Program. Key milestones are as follows:

- 1984 Reading, PA-only feasibility pilot begins
- 1987 FNS publishes study of Reading, PA, showing EBT can be cost-effective and offer gains for all stakeholders
- 1989 Maryland begins Food Stamp/Aid to Families with Dependent Children pilot
- 1990 New Mexico begins pilot
- 1991 Minnesota begins FSP/AFDC pilot; federal law allows EBT option
- 1992 Ohio begins smart card pilot
- 1993 Final rules published; Maryland establishes the first statewide program; National Performance Review calls for a nationwide system to deliver all government benefits electronically; Federal EBT Task Force formed

- 1994 FNS publishes favorable studies from pilot states; Task Force releases EBT implementation plan.
- 1995 Multi-state coalition releases joint procurement for state-administered and federal benefits; 10 state systems (10%) on EBT
- 1996 Congress mandates EBT for all Food Stamp benefits by October 2002
- 1997 25% of benefits delivered by EBT
- 1998 50% of benefits delivered by EBT
- 2000 Congress mandates nationwide interoperability; 75% of Food Stamp benefits delivered by EBT
- 2004 100% of FSP benefits delivered by EBT in all 53 state agencies.

Project Outcome

EBT implementation is considered a success and a model for other Food and Nutrition Service programs. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) program, also administered by FNS, is testing EBT approaches based on best practices learned by the Food Stamp Program. EBT has also repositioned the image of the Food Stamp Program by removing the stigma associated with use of paper coupons in check-out lines and restoring the dignity of the user.

Quantification of Results

The Food Stamp Program has been converted to EBT in all 53 state agencies, including U.S. Territories and the District of Columbia. The cost-neutrality provision in the Food Stamp Act was removed in 2002; nevertheless, State agencies generally have been able to operate these systems at or below the cost of a paper system. The benefits have been realized nationwide.

The use of EBT also has improved FNS financial management. FNS now can know what its federal obligations are based on actual daily use rather than estimates provided by the states. Agency financial statements are also more accurate because state-by-state account activity is fed directly into the FNS accounting system. States' benefit management has improved as well, since EBT allows for daily reconciliation, up-to-date data on benefits usage, and automated issuance on the same day each month.

EBT has also revolutionized the way FNS monitors retailer participation by using the data available from the system. FNS receives transaction data monthly from each state system and analyzes EBT transactions looking for suspicious patterns that might identify fraudulent activity in a store. The results of this system are sometimes used directly to disqualify stores. More often, the results trigger the need for an undercover investigation of potential store fraud. In FY 2003, 301 stores were disqualified based on EBT data. Another 18 stores were assessed a financial penalty and 490 stores received an official warning letter based on EBT data.

Partnerships and Cross-Boundary Collaboration

From the onset, FNS collaborated with numerous federal agencies to build this system. These include the Treasury Department, the Department of Health and Human Services and the Social Security Administration. These partnerships were driven largely by the state agencies and their designation of specific benefits to be included on the same card. States use their EBT systems to issue a variety of government programs including Child Care, Employment and Training, Medicaid Eligibility, Child Support, other State cash benefits and WIC. Partnerships are critical, as these programs are administered across agencies at the state level.

Replication

The Food Stamp Program's EBT technology has already been replicated for other government cash and transfer programs. One of the potential obstacles that governments may face is balancing commercial practices against government needs. There is immense pressure to modify the program to make it to more closely mimic the commercial infrastructure and, thus, to leverage costs of the program. Given the mission of the program, however, there are special circumstances and requirements that must be accommodated so that the program's purpose is not compromised.

Software Availability

In most cases, the software is not owned by the government. One state—Montana—has developed government-owned EBT software that other states could adapt for their own use. However, no state has chosen this option.

Honorable Mention

STATE: VIRGINIA QUICKPAY AND OTHER EPAYMENT CHANNELS

Government Organization: Virginia Department of Taxation (TAX)

Respondent's Name: L. Farley Beaton, Jr.

Title: Chief Information Officer

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Telephone Number: (804) 786-1715

The Virginia Department of Taxation (TAX) is charged with collecting and depositing over \$12 billion in revenue annually. More than 57 percent of TAX revenue is received and processed electronically, ensuring that deposits to the commonwealth's bank account are made without delay. TAX relies on a number of electronic payment channels, including:

- **QuickPay** The newest electronic payment channel can be found at <https://www.quickpay.tax.state.va.us/BillPaymentLogin.jhtml>. Quick Pay uses cutting edge Internet technology to support a traditionally paper-based process, and simplifies the process of bill collection and payment processing by providing an easy, error-free option for customers. QuickPay permits individuals and businesses to initiate bill payments using the Internet without the burden of an authentication process.
- **iFile** iFile allows taxpayers to file and pay their taxes over the Internet. iFile payments are made via electronic funds transfer (withdrawal) of an authorized payment from a checking or savings account on a specified date. Payment warehousing allows the taxpayer to file the return before the filing due date but arrange for payment to be withheld until the final deadline for filing.
- **Electronic Funds Transfer (EFT)** Transfer of funds from the taxpayer's bank account to the state's bank account. Taxpayers can take advantage of EFT even if they don't file their return over the Internet. Over the last several years, many business taxpayers have voluntarily chosen this efficient and cost effective method for making their tax payments. EFT is required by law for certain taxpayers.
- **Credit Card Payments** In cooperation with TAX, the Official Payments Corporation offers taxpayers the opportunity to pay taxes by telephone or directly over the Internet at www.officialpayments.com.

Reasons for Creating the Program

QuickPay was created as a part of the Virginia Tax Amnesty program. The 2003 Virginia General Assembly enacted legislation, at the request of Governor Mark Warner, to create a Virginia Tax Amnesty. It established a 63-day period during which taxpayers with outstanding bills or delinquent returns for any taxes administered by the Department could receive amnesty. Amnesty allowed taxpayers to pay only the tax due and half the interest on eligible outstanding bills and delinquent returns; the remaining interest and penalties were waived. For taxpayers who were eligible but chose not to participate, a 20 percent penalty would be added to all unpaid bills at the conclusion of amnesty. With over 383,000 taxpayers with outstanding bills, it was important that TAX provide a high-visibility, high-impact self-service bill payment channel for both the business and individual community. QuickPay provided Amnesty participants with a free and secure opportunity to research their outstanding bills and then pay them online.

At the conclusion of the amnesty program, and after demonstrated success and customer value, QuickPay was implemented as a permanent component of the VATAX Online suite of self-service Internet tools. QuickPay was designed to give taxpayers a convenient, secure option for making online payments 24 hours a day. It allows businesses and individuals to view details about outstanding liabilities and to pay outstanding tax bills online using a safe, secure, accurate, and on-time payment method. There is no requirement to sign up or register to use QuickPay. Using a common login mechanism for businesses and individuals, a taxpayer can login to this application using his or her state tax ID/SSN and a five-digit bill number.

Process Employed

The process employed to develop the online bill payment solution is a rapid deployment process that has become standard practice for Internet development at TAX. Business owners are heavily engaged throughout the design, development, and testing process to ensure that designs and prototypes accomplish all business objectives.

Amnesty was expected to generate \$48.5 million in payments during a very short 63-day timeframe. Some 383,000 delinquent taxpayers were sent a notice advising them of their liabilities, and encouraging them to pay during the amnesty period. Many of these taxpayers had not been contacted recently. It would be critical for them to have easy and convenient access to current information about their bills, as well as a fast and simple way to pay the bills. These critical business needs shaped the following objectives:

- Provide a simple, online mechanism where taxpayers could research the current status of their outstanding bills at a time convenient to them.
- Provide a fast, easy and secure method for taxpayers to pay their bills, allowing them to pay all bills at once or designate certain bills for payment.
- Utilize electronic payments to ensure rapid deposit of funds into state bank accounts.
- Implement the tool quickly but in a manner that would allow it to be easily deployed in the production environment following the conclusion of amnesty.

Historically, VATAX Online customers have been required to authenticate their identity by providing several “shared secrets” before being issued a user ID and password for accessing services. QuickPay used an innovative approach to authentication that eliminated the need for shared secrets and passwords. To gain access to QuickPay, the customer simply enters his or her account number and the bill number from any bill. There are no passwords or complicated authentication processes to use or follow.

Discoveries Made

QuickPay provides much more than just the ability to pay outstanding bills. QuickPay allows taxpayers to research details about their bills, such as the current balance, the penalty outstanding, interest outstanding, and the reasons the bill was originally created. Taxpayers often utilize this research capability to understand how much they owe and why, even when they choose not to use the application to make their payment.

QuickPay helped taxpayers understand the consequences of not paying delinquent bills during the amnesty period by allowing them to compare the amnesty’s reduced penalty and interest obligations with the existing bill plus the additional 20 percent penalty that would be added at the end of the amnesty period. QuickPay provided a personalized analysis to each taxpayer of the savings available to them through the amnesty program, and the “stick” that awaited them if they failed to take advantage of amnesty.

Our experience with QuickPay validated several important discoveries, including the following:

- Interfacing with existing back-end systems is often the most complex component of Internet development.
- Simplicity and usability are key to usage.
- Performance is critical. The tool must be available when users need it; if not, they won't return.
- A pilot for a small segment of the population is critical. In this case, the short amnesty period provided an opportunity to collect feedback and improve the application before releasing it to all potential users.

Problems Encountered

As is frequently the case when developing Internet applications that are integrated with existing back-end accounting systems, the most difficult logistics involved ensuring that the legacy system and QuickPay remained synchronized. This was accomplished through a daily two-way interface to the legacy system. Through extensive testing, most synchronization problems were resolved during the testing period and before implementation of QuickPay. Those discovered after implementation were resolved quickly and transparently to the end user.

Credit Card, Banking and ACH Fees

TAX accepts credit card payments for outstanding bills (business tax and individual tax), individual tax return payments and individual estimated payments. Users of iFile, the department's online filing service for individual taxpayers, can also pay any tax due using their credit cards.

TAX partnered with Official Payments Corporation (OPC) to offer taxpayers the opportunity to pay taxes by telephone, through iFile, or directly over the Internet without using iFile. OPC, the credit card service provider, charges the taxpayer a convenience fee based on the amount of the transaction. The convenience fee is \$1.00 for payments up to \$40.00 and 2.5 percent of the payment amount for payments greater than \$40.00.

ACH and bank fees are paid from a central appropriation through the Virginia Department of Treasury.

Project Timetable

The start date for amnesty was established by statute, leaving only a short period to design and develop the QuickPay application. The following demonstrates the key dates in the implementation process:

May 2003	Requirements Gathering (5/5 - 5/23) Detail System Design (5/26 - 6/6)
June 2003	Program Coding and Unit Testing (6/9 - 7/4)
July 2003	System Test (7/7 - 7/18) Integration Test (7/21 - 8/1)
August 2003	User Acceptance Test (8/4 - 9/1)
September 2003	Implementation (Amnesty) on September 2.

After the Amnesty period, some modifications to QuickPay were necessary to move the application from the Web site developed just for amnesty to the main TAX homepage, and to modify the application so that it could be accessed by all taxpayers rather than just those with outstanding amnesty-eligible debts. This work was accomplished as resources became available, but could have been completed much faster with a dedicated team. Following is the timetable for making QuickPay available to non-amnesty taxpayers:

September 2003	Systems Work (9/3 – 1/9)
January 2004	Implementation (for non-Amnesty taxpayers)

Project Outcome

QuickPay was implemented in September 2003 as part of the TAX Amnesty program. Although use of QuickPay was initially low during the Amnesty period, it is rapidly gaining popularity. An award-winning advertising and public relations campaign has increased awareness of the new service and its availability to any taxpayer with a tax obligation. Between September 2003 and April 2004, over 7,100 payments were made through QuickPay, for a total of \$5.2 million.

Furthermore, taxpayers who use QuickPay to research their personal account or pay their bills have responded favorably to the program.

QuickPay satisfied an immediate need as an important component of the overall TAX Amnesty program, providing taxpayers with easy and secure access to information about their outstanding bills and allowing them to pay online. At the conclusion of amnesty, when it became clear that QuickPay was a useful and well-received e-government channel, it was made a permanent component of VATAX Online.

Quantification of Results

Savings in Processing Costs: Since e-payment was introduced in 1999, over 2.9 million payments, totaling \$36.8 billion, have been made electronically. The growth in the number of annual payments has been impressive, tripling in just six years. Each electronic payment saves the taxpayer time and expense, eliminating the need for a paper check and postage. TAX saved the cost of manually processing over 2.9 million paper checks.

Additional Interest Earned: Historically, taxpayers mailed paper checks to TAX just before or on the due date. Those paper checks would arrive at TAX two to three days later, be processed and deposited to the commonwealth's bank account. Only then would the payments begin to accrue interest. Electronic payments, on the other hand, are generally deposited into the commonwealth's bank account the day after they are submitted online, eliminating the mail and processing delay. While it is impossible to

calculate precisely the additional interest that has accrued to the commonwealth as a result of expediting these deposits, it is conservatively estimated to have totaled approximately \$14.7 million over the past six years.

Partnerships and Cross-Boundary Collaboration

Two attempts to gain the funding necessary to replace the TAX technology platform were unsuccessful. As an alternative, and at the request of the administration, the 1996 General Assembly authorized TAX to proceed with public/private partnerships to finance technology needs. Private partners would be paid from increased tax revenues attributed to the successful implementation of the partnerships.

Within this framework, TAX sought a business partner that offered large-scale systems integration skills and experience with facilitating organizational change. The partner had to be willing to underwrite the cost of all hardware, software, and services, while accepting the risks of failing to generate sufficient incremental tax payments.

In July 1998, TAX entered into a six-year partnership with American Management Systems, Inc. (AMS) to create one of the largest public/private partnership programs in the country. Virginia and AMS are using a proven partnership approach known as “benefits funding” to cover the project costs. Under this model, the contract was initially funded by AMS, which, in turn, is compensated as incremental tax revenues associated with innovations are achieved. The funding strategy includes implementation of “fast track” initiatives to create an early stream of benefits. Since the partnership was initiated, \$224 million in additional tax revenue has been collected from project initiatives and used to offset project costs.

Replication

Other governments can easily replicate the fundamental concepts of QuickPay. The biggest barrier to overcome would be the potential for complex integration issues between the legacy system and the Internet application.

TAX’s benefits-funded model and phased e-government approach are also replicable. A number of other agencies have visited Virginia to see these applications and to discuss best practices and lessons learned.

The benefits-funded model allows governments to fund innovation and modernization. A 2003 Information Technology report by the California state auditor pointed out that Virginia’s Partnership “gave the state the opportunity to upgrade systems and significantly improve service capabilities without using general fund appropriations.” It concluded that “California should consider how it might apply or expand this type of model to manage a variety of IT functions.” An *Information Week* article dated June 16, 2003 featured Virginia’s Partnership Project as a model for other IT buyers to follow in getting the technology they need from vendors at little or no up-front cost.

TAX's approach to the development and implementation of electronic applications is also transferable. The California state auditor cited the partnership's use of a modular approach when developing/implementing IT initiatives.

The Partnership Project has been the recipient of numerous awards, including:

- 2001 Federation of Tax Administrators award for Management and Organizational Initiative in State Tax Administration
- National Association of State Chief Information Officers 2001 Recognition Award for Outstanding Achievement in the Field of Information Technology
- Semifinalist - Innovations in American Government Award from the John F. Kennedy School of Government at Harvard University
- The Council of State Governments Eagle e-Government Award of Excellence recognizing TAX Web site as one of the best Executive Branch Web sites in state government
- Governor's 2002 Technology Award for Public/Private Partnerships
- Three International Association of Business Communicators awards for the Virginia Tax Amnesty public awareness media campaign

Software Availability

The software is owned by TAX. Much of the design work would be transferable. However, the architecture for Virginia's Internet applications will limit direct transference of the software. TAX is willing to assist other agencies where possible.

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Emerging Practices in E-Payments

This section of the NECCC 2004 E-Payments Work Group paper attempts to highlight some of the newer or emerging best payment practices. A brief description of each e-payment practice is provided, including answers to questions including, "What is it?" "Who Benefits and How?" and "What are the implications for Government?"

This chapter is informational only and not intended to be an endorsement of any specific product. NACHA provided NECCC with these topic areas and most of the resource URL's. Additional information is available from other resources.

Payment practices/initiatives described below include:

- Check 21
- Electronic Check Council
- Payroll Cards
- Electronic Benefits and Services Council
- Internet Council
- Council for Electronic Billing and Payment

Check 21 (<http://www.federalreserve.gov/BoardDocs/Press/bcreg/2003/20031222/>)

What is it? The Check Truncation Act (CTA), also known as "Check 21" allows financial institutions to "truncate" paper checks during the check clearing process and replace them with either paper or digital substitutes. Truncation does not mean that characters or other information associated with a check will be dropped/deleted, but rather indicates that the paper document may be stopped earlier than in the traditional physical routing steps. In its simplest form, checks are scanned, then destroyed by the bank that originally receives the check for deposit. The bank on which the draft is drawn will be able to receive a complete digital copy of the draft, but will not receive the original document.

Benefits/Beneficiaries. The primary benefits of this emerging practice will be lower costs to the banking community. The primary beneficiaries will be banks and customers, if fees are correspondingly reduced.

Implications for Government Business Processes. Depending on current practices between treasurers in government and the financial institutions they work with, this may have more or less impact. Some treasurers may be involved with the scanning of checks they receive and deposit into the banking system. Others may not perform this step, but may have their "agent" financial institutions perform this step. Most treasurers would feel the impact of Check 21 though, when trying to obtain copies of checks and/or warrants written BY the

governmental entity. Many of these negotiable instruments may have been available in hardcopy format but will not necessarily be available except in digital formats after implementation of Check 21.

Electronic Checks (and The Electronic Check Council of NACHA)

What is it? Electronic checks is a broad term but can be specifically related to a number of specific new payment processes being developed, guided, and governed by the Electronic Check Council of NACHA. Review of its Web site (<http://ecc.nacha.org>) can provide you with information about the various forms of electronic checks, including:

- POP – point of purchase transactions
- RCK – Re-presented check transactions
- ARC – accounts receivable
- TEL – telephone Initiated
- WEB – Web Initiated
- DRTC – deposited and returned truncated check (pilot)

Each of these types of electronic checks serves different purposes, has had different success rates, and was piloted and put in production at different times, beginning with POP and RCK on 9/15/00 and ending with ARC on 3/15/02. A press release from the second quarter of 2003 highlights volumes associated with each of these types of electronic checks (and also includes other background information on growth, trends). The press release can be found at http://ecc.nacha.org/resources/2Q03_Home_page_stats.pdf.

Electronic checks are currently in use only for consumer to business transactions. A variety of factors have prevented the use of electronic checks in the corporate or government world, though work is being done at NACHA so that these payment vehicles can be used in the corporate world. See the following link for reference: <http://ecc.nacha.org/projects/projects.htm#business>.

There are distinctions between Check 21 and electronic checks. The Electronic Check Council of NACHA includes a helpful chart that compares and contrasts these two electronic payment models: http://ecc.nacha.org/resources/C21_vs_ACH_V4_0.doc.

Additional sources of information and research for the interested reader include The Check Conversion Education Coalition. While primarily designed to support and educate on the ARC electronic check format specifically, a whitepaper on this site includes a section which offers a good general overview of the ACH system: <http://www.checkconversioneducation.org/PDF/arcwhitepaper.pdf>.

Another Web site of interest for electronic checks is oriented to consumer benefits and understanding and can be found at: <http://www.electronic-check.org/>.

Benefits/Beneficiaries. As electronic checks are implemented and enhanced, supporters envision benefits accruing to all parties involved in the transaction – consumer, business (or government) payment recipient, and their related financial institutions. Some of the electronic check applications do not return original checks to consumers, but will allow consumers to opt out of the electronic conversion process if they wish. Supporters indicate that though original checks may not be returned, consumer statements often present more information regarding the cleared item. Financial institutions and their corporate customers certainly benefit from the reduced costs associated with clearing (or representing) electronic checks rather than paper checks.

Implications for Government Business Processes. Government can be impacted by electronic checks now by choosing to receive or convert electronic checks. Governments may want to investigate with their banking partners what types of cost savings they might achieve with the implementation of an electronic check initiative. When electronic checks become applicable to the corporate and government world (future), governments will see changes in their business and banking processes when payees of governmental organizations apply electronic check processes to government payments.

Payroll Cards

What is it? Payroll cards are a cost-effective, practical way to put pay in an employee's wallet without the expense of printing and mailing a physical paycheck. The payroll card is one solution for the millions of unbanked employees in the U.S.

Benefits/Beneficiaries. The largest beneficiary of this emerging practice will be government payroll organizations. One of the largest barriers to 100 percent direct deposit remains employees that remain unbanked. The payroll card allows even unbanked employees to receive cash via a payroll card and precludes the government payroll organization from having to write a check or warrant to these employees.

Implications for Government Business Processes. Government payroll administrators should evaluate the costs associated with their employees who are currently NOT paid via direct deposit, and should consider the costs associated with implementing payroll cards. Where a cost/benefit evaluation is compelling, government payroll administrators may consider undertaking a project to convert currently unbanked employees to payroll cards.

The Electronic Benefits and Services Council of NACHA

What is it? The Electronic Benefits and Services Council (formerly the Electronic Benefits Transfer Council) of NACHA is expanding the scope of EBT to include additional electronic government payments and services. Originally developed as an alternate benefit distribution model for Food Stamps, nationwide, 89 percent of food stamp benefits are now delivered via EBT. States are now adding additional payments, such as child care and child support, to EBT. In some states, the cards are used to authorize services, such as Medicaid services provided by physicians. The home page for the EBT Council can be found at: <http://ebt.nacha.org/>

A 46-page whitepaper, *Electronic Disbursement Options*, written in November, 2003, represents some of the latest thinking from this group.

Benefits/Beneficiaries. The benefits of advances in EBT applications will be those receiving the types of public assistance these programs provide. Recipients benefit from the ease of use of the payment medium. The benefits will also accrue to the governmental agencies that serve these recipients. These entities benefit from simplified administration, reduced fraud, reduced fees, and more.

Implications for Government Business Processes. As one of the most successful electronic payment initiatives in government, enhanced EBT processes provide continued improvements in payment processing and benefits administration.

The Internet Council of NACHA

What is it? The Internet Council is yet another council of NACHA. More broad in mission than electronic payments or benefits transfer, the mission of the Internet Council is to facilitate the development of global electronic commerce by enabling businesses, governments, and consumers to utilize present and future payments over open networks in a secure and cost-effective manner. The home page can be found at: <http://internetcouncil.nacha.org/>.

In addition to the latest news available on this home page, readers can obtain an understanding of the scope of current topics by linking to the agenda of the next Internet council meeting.

Benefits/Beneficiaries. Topics addressed by this council include authentication models, use of biometrics, new payment models, phishing and spoofing, and more. Those involved in sponsoring or implementing electronic commerce solutions benefit from the Internet Council.

Implications for Government Business Processes. Governments actively involved in electronic commerce projects may learn of new or emerging solutions to problems they encounter in their projects or in the administration of their production e-commerce systems.

The Council for Electronic Billing and Payment of NACHA

What is it? The Council for Electronic Billing and Payment (CEBP) promotes electronic consumer and business-to-business billing and payment programs and services, providing an open forum for education, resource development, research and the exchange of information about the electronic billing and payment industry. While the challenges of standardizing electronic billing are significant, the council is conducting a pilot program to test the technical and economic conditions for using the ACH Network as a bill information delivery and payment remittance option for business-to-consumer (B2C) Electronic Bill Presentment and Payment (EBPP). This initiative is known as EBIDS. The link to the Council's homepage (where EBIDS links can be found) can be found at <http://cebp.nacha.org/>.

Benefits/Beneficiaries. Despite the large challenges of electronic bill presentation (for example, achieving integration across disparate financial systems of billers vs. payees), presentation of electronic bills and integration of automated payment processes for these bills could generate tremendous returns, dramatically streamlining the time-intensive bill payment (cash disbursing process), the billing process and the cash receipting process.

Implications for Government Business Processes. Governments, as taxing authorities and fee collectors, could dramatically redesign the billing and collection processes, achieving efficiencies and cost savings. Similar savings could be achieved on bill payment processes.

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Appendix A

The Judging Process

Nominees that were eligible for the Excellence in E-Payments Awards were federal, state or local government projects that implemented electronic alternatives to paper based payments, including EFT, ACH, and card based (ATM, debit and credit) alternatives to cash, paper checks and warrants. Four key criteria were used in the judging process:

- Use an e-payment solution to achieve revenue maximization, cost savings or cost containment.
- Be complete and operational as of April 2004.
- Demonstrate rigorous measurements to show results.
- Results must be replicable and useable by other programs or governments.

Based on the number of application received, the judges determined that a single set of awards would be given, with one overall grand prize and three honorable mentions. The judging panel represented the makeup of the committee (private and public members) as well as representation from different levels of government. In addition, judges determined that if they have any conflict of interest with a certain project that they would recuse themselves for judging that application.

Individual judges evaluated and developed preliminary scores of nominations based on the “judging checklist.” After scoring had been aggregated, the entire judging panel conducted a conference call in July to review and discuss the results. The judges ranked all applications and determine a subset for discussion and final ranking. The decisions reached at this meeting shall constitute completion of judging.

After a report by the subcommittee was given to the full work group in August, the judging results and awards information were communicated to the requisite parties.

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Appendix B

The National Electronic Commerce Coordinating Council (NECCC) wishes to thank the following members of the 2004 Excellence in E-Payments Awards Workgroup for their contributions to this paper:

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