

**2001 NASIRE Recognition Awards
2001 Application for Award**

Innovative Use of Technology Category

**State of Michigan FARSTaR* Project:
The Evolution of Tax Compliance**

*(*Field Audit Research, Selection, Tracking and Reporting)*

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Executive Summary

Michigan's Revenue Compliance Bureau has implemented a state-of-the-art, fully automated and integrated information technology solution that is revolutionizing the way we administer the entire audit compliance process for more than 550,000 registered business taxpayers. **The new system will place Michigan among the nation's leaders in utilizing technology to achieve breakthrough results in the area of audit and compliance.**

Code-named **FARSTaR** (Field Audit Research, Selection, Tracking and Reporting), the solution is a **fully automated, integrated, comprehensive** system that extensively uses leading-edge open industry standards (i.e. XML and COM) and current technologies to address all areas of the audit selection and audit compliance process. Our auditors and administrative staff are now able to perform their duties **completely electronically** – which will improve their own performance as well as the overall environment for Michigan's business taxpayers.

Approximately 200 auditors, administrative and support personnel will use FARSTaR to help manage their work – **real-time, on-line, fully automated, and without paper**. Auditors will connect with the system in Lansing from their in-home offices, field offices within Michigan, from satellite offices outside the state, or from the corporate headquarters or branch offices of those companies that do business in the state.

We now have a system that provides auditors and management with rapid, paperless access to four years of detailed tax return data, tax documents, third-party reports, state and federal tax laws, law changes, administrative rules, court cases and other information. **The detailed tax return data is stored on Michigan's modern statewide, multi-agency data warehouse system where it can be accessed, retrieved, and analyzed rapidly and comprehensively.** The other data is readily available through direct linkages to a number of web servers.

Auditors are connected through laptops computers to the all Treasury offices as well as to all other auditors, audit support staff, Treasury tax experts, and customers. An automated audit tracking and management system provides supervisory tools that facilitate the **downloading of new audit assignments, uploading of updated and final audit files, time and expense reporting, progress tracking and other management and tracking capabilities.**

Potential audit cases are selected by using an automated rules-based system that automatically extracts the required data from the Treasury data warehouse before processing the data against the rules base. Then data is extracted through an industry standard ODBC interconnect with ANSI standard SQL calls. The selection staff can directly access data from the data warehouse to complete an analysis of the taxpayer or to review the results of the rules processing. The audit assignment staff can either accept the case as a candidate for audit or elect to move it to a "reviewed, but not recommended for audit" category. All results of the screening processes are stored in the data warehouse for future review. Once a supervisor electronically assigns a case to an auditor an electronic audit case file is generated with all relevant taxpayer data that is downloaded from the data warehouse, rules base findings, manual screening results and audit instructions. The electronic case files are stored on a central audit server with extensive version control and the central file is automatically updated as the case is worked in the field.

The entire system is protected with a **state-of-the-art PKI security solution** that provides strong 128-bit encryption of all audit data that is sent to, sent from and/or stored on the auditor's and Supervisor's desktop and laptop systems.

An architectural overview is included as Figure 1 at the end of the written text.

The technology being deployed in the FARSTaR system will help the Audit Division achieve a number of sweeping and long-awaited business goals:

- *Level* the playing field and ensure fairness for all Michigan business taxpayers
- *Ensure* audit uniformity, fairness, and quality
- *Provide* better customer service and education through the audit process
- *Identify* and rank non-compliant taxpayers
- *Improve* the level of voluntary compliance
- *Reduce* the administrative and time burdens placed on taxpayers during audits
- *Maximize* the recovery of unpaid taxes
- *Improve* departmental efficiency and productivity

With the implementation of FARSTaR, the Revenue Compliance Bureau has dramatically transformed its management of the audit and compliance process. We have taken an unwieldy and inefficient system that once frustrated our staff and taxpayers alike, and reinvented it to create an equitable and efficient 21st century model for states across the country to emulate.

A. Description of Project

The “Dark Ages” Before FARSTaR

Before FARSTaR, the Compliance Bureau operated as a typical paper-intensive disconnected audit program. Like many states, our ability to properly screen and select taxpayers for audit, to provide adequate auditor support and to provide efficient customer service was severely limited. Auditors lived a lonely existence out in the business world hunting for tax revenues predominantly disconnected from the main offices. These were the “Dark Ages” for Audit. There was an obvious need to implement a system that would help move Treasury into the 21st century, and that would provide us with the tools required to respond to the modern needs of both the taxpayers and our staff.

Pushing to Revolutionize the Process with Automation and Integration

The project development team concluded **that technology was the key to realizing its ambitious goals**. We wanted to revolutionize our entire process from the ground, up. What we wanted was *a full life-cycle, fully integrated and automated* audit selection and field audit support system. In addition to the business goals, the development team established **aggressive systemic and technical goals** as well. These included:

- To achieve exponential improvement in the area of *management reporting* by enabling managers and staff to access and analyze data stored in the *data warehouse*
- To introduce *computerized support for the audit selection staff* using a knowledge base supported by a data warehouse that would store all current and historical taxpayer information (federal and state)
- To create a new *technical infrastructure* to support electronic communications (e-mail, law changes, etc.)
- To improve *computerized support for the field auditors* by developing a division-wide integrated environment
- To create a system for *computerized management, tracking and storage* of audit case information

If successful, we could provide business taxpayers with better service, be more productive, increase levels of voluntary compliance and therefore increase the recovery of revenue for the state.

FARSTaR’s Far-reaching Scope

In late 1997, the Bureau of Revenue embarked on an aggressive three-year, two-phased project to design and fully implement an integrated audit selection and field audit support system that we believed would help transform our vision into a reality. The project, known as FARSTaR (Field Audit Research, Selection, Tracking and Reporting), went into full production in April 2001. It relies heavily on the state’s multi-agency data warehouse system and statewide telecommunications infrastructure.

The Bureau project personnel worked with Bull HN Information Systems Inc. and its subcontractor, WM-data Consulting A/S, to design and implement the project both on-time and on-budget. FARSTaR is now a fully automated, integrated, comprehensive system that addresses all areas of the audit selection and audit compliance process. Our auditors and administration staff are now able to perform their duties completely electronically – **the resulting benefits will improve both their own performance and the overall environment for Michigan’s business taxpayers.**

Technical Infrastructure/Architecture

The FARSTaR solution is based on a three-tier architecture. The first tier is made up of a current generation NCR 5250 Relational Database Computer (RDBC) that used the most current release of the Teradata Relational Database Management System (RDBMS) to store the data that comprised the Treasury data warehouse. The tax data that is stored in the data warehouse is extracted from Treasury's UNISYS legacy systems and IRS provided tape files and is then loaded to the data warehouse and periodically updated on a pre-defined schedule. Data in the warehouse can be accessed by any authorized personnel within Treasury using ODBC and ANSI standard SQL tools.

The second tier of the architecture is made up of two Windows NT Audit Servers and a number of other supporting servers that are connected by a local area network (LAN) and a wide area network (WAN). These provide access for all auditors and support personnel in the Audit Division. The Audit Servers host the server-based portions of the WM-data ESKORT audit selection, field audit support and the audit management and tracking components of the solution. WAN connections provide access to e-mail servers, intranet Web-servers, security servers and the Internet.

The third tier of the architecture is made up of the file servers, desktop computers, document scanners, printers and LAN servers strategically distributed across all in-state and out-of-state offices. Each auditor is equipped with a modern Windows-based laptop computer with a modem, network card, CD-Rom drive, floppy drive, portable printer and integrated smart card reader.

Every hardware component of the FARSTaR system is or can be network connected via an office LAN that is connected via a hard-wire connection or a switched multi-megabit digital service (SMDS) to the state's WAN. All auditors can connect to the LAN from any Audit office, or to strategically place dial-in modem-pools that provide remote access to the WAN from anywhere in the world.

The Audit Selection System was established based on the screening/selection functionality of the ESKORT Compliance Solution Platform software, which offers systems for screening and selection, identifying non-filers, and systems for supporting the actual audit process, audit review, and management. ESKORT provides standard SQL-based query and OLAP tools, knowledge-based risk analysis, data mining, and other analytical tools.

Security

We needed a high level of security to transfer audits and audit related information over the WAN and the Internet, to comply with current and proposed IRS regulations, to prevent unauthorized access to data and the network, and to **ensure public confidence**.

To provide the required security we implemented the RSA "SecurId" network authentication system and the RSA PKI "Keon" system. The PKI system provides strong 128-bit public key encryption of all data transmissions to and from the servers, laptop and desktop computers, as well as encryption for all data and audit files stored on the desktop and laptop computers. It also provides encryption for all e-mail traffic.

To provide a highly secured authentication mechanism and a single-point of logon capability we have deployed RSA's SecureID 3100 smart cards. Each employee is issued a smart card. Each smart card contains personalized access codes, encryption keys and a digital PKI certificate. The smart card must be inserted in the desktop or laptop system and an appropriate logon/password combination must be entered in order to gain access to any system component, or to encrypt/de-encrypt any data transmission, e-mail or file. The smart card must remain in the reader throughout the session. The desktop locks automatically if the card is removed from the reader, if the reader is removed from the PC or if the PC remains unused for a pre-set time.

B. Significance to the improved operation of government

Improved screening and selection process

At least four years of detail tax return data on all taxes paid by Michigan taxpayers (business and individual) and at least four years of all Federal Income Tax data has been loaded into Treasury's data warehouse. The FARSTaR audit selection tool is a rules-based engine that allows us to create cascading rules to select companies for audit based on industry codes, income, expense factors or a number of other criteria.

We can specifically select taxpayers that will not only have a great probability of generating audit assessments, but also those that have not been audited before. FARSTaR's capabilities now enable audit selectors to conduct a comprehensive automated screening and ranking of a candidate in seconds where it used to average more than 4 hours per screening.

A fully integrated audit management and field support system

Once the audit is selected from the pool of prioritized potential audit candidates, an electronic audit case is automatically created and sent to a field office queue for assignment. Auditors are now less likely to miss issues as they are pre-identified and the data is pre-populated in electronic audit templates. Auditors supplement or modify the data in electronic worksheets that are automatically re-calculated whenever any data is added or modified. Auditors have immediate information to determine whether a given change is material or not. Audit data can be refreshed automatically from the data warehouse during the audit to assure that the auditor has the latest available tax data. At any point during the audit the auditors can run the audit case through a rules base that contains either customer audit rules, or the rules that were executed in the selection process.

On-line, real-time access to tax research

When questions arise as to the application of the law, as they invariably do, FARSTaR provides auditors with the most up-to-date tools to ensure the highest quality audits. Auditors can connect via the Internet or via the office network to the Commerce Clearing House (CCH) web-based tax research service, which includes information on court cases, white papers on taxation, a clipping bureau for important news articles, and the Michigan and federal tax codes. In addition, auditors have access to the Audit Division Intranet site for additional research information, bulletins, practices, forms and other audit related information.

C. Benefits

Dramatic increase in number and efficiency of audit reviews

Our original calculations estimated that the Bureau would be capable of conducting a minimum of 125,000 reviews annually, compared with only 6,000 that could be completed per year prior to FARSTaR's implementation. We completed in excess of 100,000 actual screenings and reviews for the period of October 2000 through March 2001. In addition to establishing repetitive sorting and selection processes, we can also generate ad hoc queries to locate audit candidates based on recent case developments.

Vastly better customer service in the field

FARSTaR has helped the Bureau improve its entire field audit process, with the largest benefit being improved and more consistent customer service to taxpayers and greater productivity among staff. The rapid and cohesive information available through the system helps ensure greater audit uniformity, resulting in fewer appeals. Second, auditors are able to use the time they spend with taxpayers more efficiently, thereby improving customer relations and reducing the strain on taxpayers' time, office space and staff resources.

Improved connectivity and communications

With FARSTaR, auditors are now required to upload in-progress audits to the Audit Division network on a regular basis and they have ready e-mail access. This allows us to be better connected to our auditors. We can communicate through email updates on recent developments in statutory or judicial law or even refinements on policy interpretations. Because managers can review audits when they are in progress, we have greater potential for catching any errors or misdirection's at any time in the process rather than in the final audit review.

Improved access and use of data

With the new system, auditors and selectors will now have on-line, real-time access to State and federal taxpayer data, making it much more efficient to determine reporting patterns. Further, the system enables auditors to have access to new data that has become available – for example, liquor purchases and sales (which are regulated by the State) and customs information (since Michigan is a border state). In addition, FARSTaR provides auditors with the ability to forecast and schedule their short- and long-term audit workloads.

D. Return on Investment, financial benefits

We know that efficiencies, better access to information, and the ability to analyze that information more effectively will result in significant financial benefits to the State. We anticipate that through the use of the FARSTaR system revenue recovery from previously unpaid taxes is expected to increase by **10% that translates to an increase of \$12 million-\$17 million annually.**

In addition, costs will be reduced through operational efficiencies. These benefits will accrue without a corresponding increase in the workforce.

Overall, we estimate that the FARSTaR system will allow us to recover our total project investment in 18-24 months.

Figure 1
State of Michigan Department of Treasury
FARSTaR Infrastructure - Conceptual View

