

Technology Transfer of Inter-Agency Government Services and Their Transnational Feasibility Studies

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ABSTRACT

As a part of technology transfer efforts for New Jersey State government interagency business integration and data sharing, we address Streamlined Revenue Management initiatives for Division of Revenue to integrate budget planning and reporting process, and to implement scalable database and retrieval system for large-scale data from the State and Federal income tax E-filings. The business service integration model is also compared with those in EU counterparts, in terms of available business services, technology and strategies.

1. PROJECT DESCRIPTION

This project is a technology transfer effort of our prior NSF digital government project, “E-Government: Human-Centered Systems for Business Services” [1], which has the following two specific objectives. The first objective is to develop the backend systems that allow the data sharing among different agencies as well as the front-end interface system that is visible to the citizens and businesses of the State of New Jersey, as a step toward the technology transfer of our prototype system.

The second objective is to conduct an evaluation study of our collaborative e-Government research and implementation model in similar business-related services in the EU (European Union) countries to assess what has been achieved and how different experiences can provide critical knowledge. Such knowledge can be shared within the context of US - EU transatlantic co-operation by combining resources and/or initiatives of the e-Government research programs of the United States’ National Science Foundation (NSF) with those of the European Commission’s Information Society Technologies (IST) research program. The specific objectives of this proposal are, thus, two-fold and structured to allow both a further expansion of the US-based CIMIC project within a consistent analytical framework and a mechanism to stimulate policy exchange between the NSF and the IST e-Government research programs.

2. BACK-END SYSTEMS: STREAMLINED REVENUE MANAGEMENT

2.1 Interagency Business Accounting

The Office of Management and Budget in Division of Revenue (DOR) keeps track of business transactions of the New Jersey State agencies for summary reports, auditing and budget planning. The accountants in DOR need to prepare budget planning

documents based on departmental reports such as program Justification (BB101), Fiscal and Position Request (BB102), Revenue Statement (BB103), Revolving Funds (BB103A), Evaluation Data and many others. We have analyzed the DOR’s process of taking business transactions data from Division of Motor Vehicles and prepare various budget planning documents.

Department of Motor Vehicle maintains 57 regional branch offices, with business transactions that include dealer license business summary, special plates business summary, inspection-related summary in addition to the regular transactions. The transaction records are transferred to DOR as printed paper. DOR re-enters these data manually in various excel worksheets, verifies the numbers and matches with the actually receipts. Once verified, the summary and consolidated worksheets are prepared. This process requires coordination of different worksheets that are prepared by different accountants. The consolidated worksheets are used for generating quarterly and annual reports and budget planning documents.

CIMIC-Rutgers is in the process of developing application software to automate and enhance the business process of preparing the reports and budget planning documents. We developed a central database as opposed to several separate worksheets prepared and maintained by different accountants. The digital input data (mostly in PDF format) from DMV is entered into the database through an automatic data ingest module to cut the manual entering of data and to avoid the preparation of separate intermediate worksheets. The BB-104, Fiscal Year Report, and intermediate summary spreadsheets can be generated from the database. The data values and intermediate values that are entered into the database will be immediately available for sharing among accountants and managers. This application is flexible to produce various reports. The front interface is Web-based to add an easy-to-use features. We have finished the data ingest module and data population, and the Java-based Web application will be deployed on the DOR’s intranet infrastructure.

2.2 E-filing System

DOR has over the last couple of years has aggressively pursued E-Filing initiatives as a matter of course. This initiative contains that State and Federal filings were mandated to be e-filed or to limit thresholds and/or limits for e-filing requirements. The e-file initiative can achieve significant savings by eliminating paper-based transactions costs. The Division of Revenue continued to expand its electronic filing processes for both businesses and individuals, including (1) individual income tax filing of State NJ

1040 and Federal programs, (2) partnership business filings of NJ 1065, and (3) e-Payment options with E-Check, Credit Card, and Electronic Funds Transfer payment options for all major taxes.

An important part of E-File initiatives or mandates is the capability to receive tremendous amounts of data, from many transmitters in a secure fashion. DOR currently uses the Office of Information Technology's (OIT) state portal to accept transmissions of data from third party software providers. The OIT portal method of file transmission is called Secure File Transfer (SFT). This method, while secure, was never meant to be used for the amounts of data and number of transmitters of data that new E-File initiatives or mandates will create. DOR plans to implement a commercial software Tumbleweed Suite to handle all of the current and future requirements of the Treasurers E-File initiatives.

CIMIC-Rutgers University is developing a consolidated backend database design and data warehousing that can handle data volume and flexible queries. Specific tasks are (1) to examine and document NJ E-file Record Layouts from year 1995 to present, (2) to examine and document federal 1099 and W-2 file layouts for year 2005, (3) to create a consolidated database schema that will accommodate all required data, (4) to define and create data tables and indexes for all data, (5) to define and code programs to load the income tax return data into database, (6) to define and develop Web-based ad-hoc queries to retrieve data for an individual's tax records such as all 1099, W-2, and E-file data, (7) to define and code data mining module to generate audit reports, e.g. reports for comparisons of income reported on the e-filed tax return to 1099 and W-2 data, and reports for summary statistics and anomalous or exceptions reported by taxpayer, for instance, income reported on e-filed tax return is not within an acceptable percentage when compared to total of 1099 and W-2 returns.

The challenge has been to analyze the huge data layout files (equivalent to metadata files) with over 1000 pages of PDF documents for each year for e-file data and to design robust database schema. The data records captured in e-file system (20 to 25 million records) are not so regular that they match exactly with the layout files. Some are structured and obligatory and others are unstructured and optional. Data pre-processing stage is also found challenging to find delimiters for separating one record from others, and State filing data from Federal filings. The finished system is expected to be used by a couple of hundreds of auditors throughout New Jersey.

3. FRONT END SYSTEM: BUSINESS GATEWAY INTERFACE

CIMIC-Rutgers University is redesigning and modernizing the front end interface for the New Jersey State Business Gateway [2] that supports businesses to establish business entities and register for taxes. Some design criteria considered include: functional completeness, information customization, ease-of-use, and modality of delivery.

4. COMPARATIVE STUDIES

The transnational comparative studies has two broad objectives: (1) determining the state-of-the-art in eGovernment provision of online services for businesses in Europe, identifying different

models and comparing them with the model designed by the CIMIC-New Jersey project. In the first phase of the project, the work concentrates on developing a methodology for comparative analysis to provide a consistent analytical framework for surveying of cases in Italy and in other European countries. (2) the methodology will take into account both the NSF-Digital Government and the IST-eGovernment R&D thematic components in order to establish a common basis for discussion and comparison of different projects and programs which aim to achieve the same objectives. The project thus seeks to establish a mechanism to stimulate policy exchange between the NSF and the IST eGovernment research programs.

In the first phase, the general comparative elements are identified: (1) *geo-administrative units of analysis*, which are responsible for creating eGovernment aimed at promoting business development in the EU in order to place the NSF-NJ project within an appropriate, consistent context. (2) *case criteria and screening grid* across the four main elements of eGovernment: *services, technology, strategy* (which is divided into implementation strategy and coordination strategy) and *level of integration*. Each criterion has basic elements of comparison as shown in table 1. The comparison study continues with identifying a set of EU eGovernment cases through Web site searches, and applies the criteria.

Table 1 Initial screening grid for comparative analysis

Comparison Criteria
eServices for Businesses: <i>One-stop Business Registration, One-stop Vendor Registration, eFiling of Income Tax Return, Business Location Services</i>
Technology: <i>user interface (visualization), workflow generation & customization (for the composition of services), peer-to-peer decentralized workflow execution, data sharing & data interoperation, data repositories, GIS applications</i>
Implementation strategy: <i>front & back office organization model</i>
Coordination strategy: <i>policy coordination model</i>
Level of integration: <i>Catalog, transactional, vertical, and horizontal</i>

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6. REFERENCES

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- [2] <http://www.state.nj.us/njbgs>