Modernization of the Tax Administration of the Russian Federation

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* This report was managed by Allan Firestone. It summarizes the work and contributions of Igor V. Bradis, Oleg S. Rurin and Oleg V. Zacharov of the STS and Alan Firestone, Frank Jenkins, Colin Barclay, Kevin Whelan, Harold Browning and Bill Lefbom of GSU and from comments by Jorge Martinez. The paper was formatted by Paul Benson. This research was funded by the U.S. Agency for International Development under Georgia State University’s Russia Fiscal Reform Project.
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Introduction

This report has been prepared in response to a general request by the State Tax Service (STS) to the Georgia State University (GSU) Russian Federation Fiscal Reform project (sponsored by the U.S. Agency for International Development) for assistance in carrying out a series of studies required in support of the modernization of the STS, and more in particular, as a condition of continuation of the World Bank loan for computerization, including the “review EDP systems being developed by RNIVTs from a tax administration perspective, to ensure their adequacy, responsiveness to needs of the STS and effectiveness.” This work was spelled out in detail in the Terms of Reference (Appendix I) prepared by the GSU team. Michail V. Mishustin, Deputy Head of the STS, requested GSU’s assistance to evaluate progress and to recommend possible future directions for the Tax Administration Modernization Project (TAMP) pilot in Nizhny Novgorod and Volgograd regions.

To prepare this report STS officials and GSU advisors visited the Nizhny Novgorod Oblast during November 15-20, 1998 and the Volgograd Oblast during November 22-25, 1998. In Nizhny Novgorod they met with officials of the STI and visited the Leninsky and Balachinsky Rayons as well as officials of the RNIVTS Computer Center. In Volgograd they met with officials of the STI and the Volzhsky and Dzerzinsky Rayons. Their visit to Volgograd coincided with that of Mr. Mishustin and Mr. Richard Highfield, the IMF Advisor to the STS.

Igor V. Bradis, Oleg S. Rurin and Oleg V. Zacharov of the STS and Allan Firestone, Harold Browning, Frank Jenkins, Colin Barclay and Kevin Whelan of GSU performed the review. They received interpretation and translation support from Olga Kostritsa, Tatyana Zolotukhina, Yelena Gobanova and Arkady Tchaikovsky. Due to the difficulty in simultaneously working in English and Russian, however, only the GSU technical advisors participated in preparing the final report.

The authors of the report received full cooperation from all officials with whom they came into contact and were given access to all information requested. They wish to thank all the officials who assisted in providing the needed information and whose hospitality exceeded all expectations. In particular, the authors wish to thank Nikolai F. Polyakov, Evgeny S. Kuznetsov and Boris A. Bilkovsky for making their visits to the Nizhny Novgorod and Volgograd Oblasts productive as well as enjoyable.

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Background

The effort to modernize the operations of the STS of the Russian Federation began with a report of the mission from the International Monetary Fund\(^4\) in February 1992. That report recommended, *inter alia*, the development of an overall collection system and attendant procedures, implementation of an audit program and rationalization of the organizational structure. To carry out the recommendations of the February 1992 mission, a pilot project was initiated in February 1993 and implementation began on July 1, 1994 in the Rayon offices of the Moscow City STI (Taganskaya) and Moscow Oblast STI (Lubertsy) with IMF assistance\(^5\) and support of the European Union.

The project sought to complete modernization of the tax administration of these two offices, starting with a limited number of VAT payers. This pilot project was concluded on April 29, 1995, as agreed between the IMF and STS. The second phase of the modernization project, initiated almost immediately thereafter with World Bank\(^6\) support, has sought to introduce modern tax administration methods on a larger scale in about 110 offices in two regions (Nizhni Novgorod and Volgograd). In both cases the approach was to move the organizational structure of the STS to a more functional orientation; introduce a self-assessment system for filing returns and paying taxes; use a taxpayer registration process and taxpayer identification number system; introduce computer systems to maintain accounts of taxpayers tax liabilities on a current basis, to rapidly detect non-filers and stop-filers as well as non-payers; to conduct selective, in-depth audits of taxpayers; to simplify tax forms and to provide training to staff as well as taxpayer education to the general public. In general, recommendations were to initiate reforms with the main federal taxes, i.e., VAT, enterprise profits taxes, excises and withholding of income taxes by employers\(^7\).

As part of the TAMP World Bank project, the STS contracted with the RNIVTS organization (a subsidiary of a semi-private company, GNIVTS, whose head is appointed by the Head of the STS) to develop application programs to accomplish the computerization part of the foregoing modernization efforts. The contract was signed on June 20, 1997 and the schedule of actions required the application programs to be completed by May 1998 while including additional functionality\(^8\) beyond that originally provided in programs developed by the GNIVTS. This phase of the modernization effort was to involve the following elements:

- Expansion of the modernization effort to include all VAT taxpayers in both pilot project offices and the introduction of automated return processing of enterprise profit tax in both offices on a limited scale;

\(^7\)Ibid, pp. 19-22.
\(^8\)Aide Memoire, TAM P (Loan No. 3853-RU), World Bank Supervision/Restructuring Mission, June 1997.
Introduction of full tax administration reforms and automation of all 110 local offices in the two pilot regions; and

Expansion of the data processing system to include all major federal taxes for legal entities.

In parallel with the above actions, the STS was to develop a national strategy for modernizing tax administration, national guidelines for tax administration, national computerized system architecture, a national training plan and a national audit plan, as well as investigate the possibility of including taxation of individuals in the scope of the pilot project.

Executive Summary and Strategic Plan

a. Introduction

In the past few years computers have become an essential tool in the administration of taxes. Although there is still a belief in many quarters that the administrative difficulties of taxation operations can be overcome simply by providing staff with up-to-date computers, there is little debate among tax specialists, however, that computerization yields its best results when accompanied by complementary reforms in organization and procedures. It is generally recognized that computerization is not a miracle solution to existing problems and needs to be part of an overall modernization reform.

It was generally recognized when the TAMP project was first initiated, that computerization, to be effective, must be linked to the ultimate objectives of tax administration. Those are: to establish control on taxpayers to determine the tax base, identify who is subject to paying taxes and the types of taxes they are liable for; to maintain a current, consolidated account of all payments, penalties and credits for each taxpayer; to speedily detect taxpayers who fail to file returns on time or to pay the full amount of taxes due; to aid in the selection of returns for audit by targeting those most likely to understate income or sales or overstate expenses or deductions; to match information from third parties against information reported by taxpayers for verification purposes; to provide taxpayers with good service and enough information to promote voluntary compliance; and to generate statistics and management information.

The TAMP project envisioned that the development of a computer system will be complemented by the development of a self-assessment system. Under a self-assessment system, taxpayers are able to complete their declarations, calculate their tax liabilities, and make the tax payment at the time required without direct contact with a tax inspector, unless the taxpayers have a specific question. This requires that the tax administration should provide to taxpayers the information needed to complete their tax declarations and make available simple tax forms and procedures. The information on the tax forms should be kept to a minimum and be readily available from the taxpayers' books and records to encourage compliance. Finally, a selective audit program should be in place to verify the information provided on the tax declarations.
Computers (after capture of data from paper forms or through electronic filing) should then be used to perform corresponding routine functions, like verifying TINs and other credibility checks, verifying arithmetic calculations, accounting for withheld and pre-paid or estimated taxes, maintaining individual accounts, matching payments with declarations, and identifying noncompliance through the use, for example, of third-party information.

Self-assessment of tax liabilities (especially for the VAT but also for other taxes), allows the tax administration to devote more resources to facilitation of procedures and to detection of noncompliance and fraud. Self-assessment also permits the tax administration, together with extension of computerization, to cope with the additional workload resulting from a growth in the number of taxpayers.

The taxpayer identification number (TIN) was recognized as another key element of modernization and one of the prime prerequisites to the successful implementation of a computerized tax administration because it gives access to the taxpayer records and all relevant information.

The introduction of computers was expected to eliminate the bulk of the repetitive clerical tasks from the tax officers and present an opportunity to the tax department to eliminate the close linkage between the tax officers and the taxpayers. This would have decreased repetitive work loads and reduced the opportunities for corruption. If computerization was to be economically justifiable, it required the organizational structure to be reformed. While computers would take over the routine work of tax inspectors, they would be available to accept non-filer and non-payer information as well as lists of potential audit candidates and enforce compliance with tax administration laws. The computer system was to be designed in a manner that would make the data entry operation the first step in processing tax returns and verifying the tax computations used by the taxpayers. Detection of errors, under-payments of tax, failure to file, and detection of potential under-reporting were all functions that were to be performed by the computer. These functions would become routine and exceptions and problems could then be flagged for review and action by tax inspectors. In addition, as a by-product of work processes, computers were to provide management information reports, statistics of income and tools for forecasting workloads and revenues.

b. Findings

The review of modernization work in Nizhny Novgorod and Volgograd was undertaken with the general guidelines listed in the World Bank loan document as a base. These guidelines were then compared to accomplishments of the two Oblasts in achieving the goals initially established when the funding from the World Bank was obtained for the TAMP project. While there have been shortcomings in meeting these goals the regions have conscientiously tried to implement these expectations. These two STI offices have made significant investments of resources and staff time in the TAMP project.

Both of the regions have accepted the need for and are strong proponents of organizational and system modernization. Often, when direction and budgetary support was not forthcoming from STS Headquarters the Heads of the Oblast STIs assumed responsibility for moving forward on this
project. In spite of severe budget problems, many important facets of the project have been implemented. Without their personal interest the project would not have achieved all of its positive accomplishments.

These accomplishments include the assignment of Taxpayer Identification Numbers (TIN) to all legal entities and some entrepreneurs and the movement of the pilot offices into organizing their operations into a functional structure to achieve specialization of some facets of their work. There have been noteworthy initial steps in creating a taxpayer assistance function. Management recognized the need for, and the benefits of, having a separate organization with the specific responsibility of providing taxpayers with information and assistance in meeting their tax obligations.

Many initiatives implemented by these offices were of the nature of those that should have been implemented at headquarters, for example the writing of a simply worded set of instructions explaining certain tax laws and instructions of how to prepare declarations.

Management in both regions has successfully created a positive attitude towards modernization and, if given proper direction, support, and financial resources from the Federal STS level, Nizhni Novgorod and Volgograd will be in the forefront of the future modernization efforts.

Even with these positive initial steps there have been missed opportunities and progress has been impeded. Beginning from their efforts up till now several important and urgent steps are needed to timely realize the original vision in the TAMP for the future of tax administration in the Federation.

System objectives: Although the goals of the TAMP pilot project were clearly set out in the loan agreement these were not translated into meaningful and measurable system objectives by the time the Terms of Reference for RNIVTS were signed. Contributing to the problem was a lack of clear definition of the roles and relationships among the STS’ TAMP project, the RNIVTS and the end-user Oblasts.

Applications software: The software developed by RNIVTS was based on a Windows environment. It includes a variety of features that make it superior to the DOS FoxPro-based system that it is intended to replace. It is clear, however, that computerization, through the use of the FoxPro systems and the RNIVTS-developed replacement, largely took the form of conversion of manual systems to computers, without the requisite changes in procedures and with only limited changes in the corresponding organizational arrangements.

Software development and training: It was difficult to determine the exact status of software development or the state of tax inspector training in the use of the new system. Some application programs are not yet developed, e.g., audit selection and data base conversion, while other applications are in test stage, but their status is not certain. It appears that some limited training was provided in the basic operations of the Windows environment, but little in the way of training in the use of the RNIVTS-developed applications. The staff of RNIVTS was present to assist the local tax officials in demonstrating the capabilities of the software during the review. In a number of instances RNIVTS
staff had to intervene to demonstrate some more complex features of the system with the explanation that the local staff has not fully completed their training.

The tentative, July 1999, date for completion of testing (see Appendix 3) is at variance with the original target shown in the aide-memoire of the World Bank mission of June 1997 which called for completion of all systems development and testing by May 1998. A partial explanation could lie in the fact that although the Terms of Reference were signed by the Director of RNIVTS in September 1997, they were approved by the First Deputy Head of the STS only in December 1997.

A brief review of the application programs evidences that the development suffered from a lack of a development methodology, an emphasis on programming over analysis and no provision for independent testing.

The application programs have limited controls and data validation capabilities which could open the process to errors and to corruption of files, either accidentally or deliberately.

There does not appear to be any methodical approach to detecting errors in the programs or in the overall systems design. Tax inspectors, who are to be the ultimate users of the system, appear to receive minimal training in the windows environment and in the use of the system. They are expected to use the system and to report to the Computer Center any shortcomings in the applications as they discover them.

**Procedural changes:** Self-assessment has been one of the goals of the modernization program yet there is little evidence that self-assessment has been introduced. Although there has been progress in establishing a taxpayer service organization and progress on taxpayer education seminars as well as use of media to inform taxpayers, little else has occurred to make self-assessment viable. The tax declarations have been redesigned in one of the local offices for use in a scanning environment. However, because the STS did not give any discretion to the pilot STIs no changes to the substance of the forms has been introduced. Moreover, no change in procedures has been detected. Taxpayers still are expected to have their declarations validated in a face-to-face meeting with their designated inspectors, who in the process of doing cameral audits, compute the taxpayers’ tax liability and enter the information in the computer. While field audit rates are very high, audits of taxpayers are based on traditional selection criteria not on the probability of the taxpayers underpaying their tax obligations.

**Organizational changes:** The local offices in the Volgograd Oblast have made some progress towards organization along functional lines and are further advanced than the offices in the Nizhny Novgorod Oblast. The primary improvement has been in the establishment of a taxpayer services organization. In both Oblasts, however, there still appear wide variations in structure in each local office. Neither Oblast has yet made most of the necessary changes in systems and procedures that would allow them to move further in the direction of specialization of functions in a modern sense.
c. Conclusion

The inescapable conclusion is that the current status of the TAMP software and the ancillary reforms in procedures, tax returns forms, and organizational structures are less than complete, making the roll-out of the TAMP to other Oblasts premature.

The short-term actions recommended in the succeeding sections are aimed at enabling the STS to make some minimum improvements in the organizational structures of the pilot offices and in moving the software into an operational mode so that its benefits can be realized.

For the medium term the software developed by RNIVTS must be largely redesigned. The revised software should take full advantage of the capabilities of computers to take over most of the routine work of the tax inspectors. A self-assessment system, in which taxpayers fully complete their tax declarations without intervention by tax inspectors, must be introduced and the functional organization fully implemented in the pilot regions to complement the changes in the computer system. In other words, modernization of the STS goes beyond computerization. It will require reliance on a self-assessment system and the reorganization of the STS along functional lines.

It should be noted that the team was not given access to the necessary statistical data, therefore the recommendations for the medium term are of a general nature only. In any case, specific recommendations are premature. The recommendations made in the succeeding sections aim to improve the organizational structure and the decision-making process at the STS level. The recommendations focus on developing the necessary tools and conditions that will allow the STS to modernize its computer systems, procedures and field organization.

The recommendations that follow are somewhat arbitrarily labeled as short- and medium-term. In order to begin the modernization process, however, some of the actions recommended for the medium term should be initiated in the very near future.

Issues and recommendations for the short term

a. Issues

Overall, it appears that the computer system developed by RNIVTS, while an improvement over the current FoxPro-based applications, by and large has computerized the same old manual systems. There is little evidence that the work of tax inspectors and other tax officials was studied and redesigned in order to take advantage of the power of the computers to take over some of the routine work of tax inspectors.

Although mention was made of re-organization of the local tax offices along functional lines, this did not appear to have been fully carried out. While, generally some taxpayer services have been provided, tax forms have not been redesigned and/or simplified and a true self-assessment system has not been introduced. In some offices the organizational units were given names that imply a functional
alignment, but the activities did not always correspond to the names. In addition, there was a great deal of overlap and duplication of activities.

Typically, the local offices are still organized along type of tax or type of taxpayer lines, with taxpayers assigned to deal only with specific tax inspectors who provide tax advice and assistance with filing of tax returns. These tax inspectors perform cameral audits and make the assessments based on the review of the returns and the resulting negotiations. Only after the manual processes are completed are computers used to enter the data from taxpayer returns (duplicating the work of the tax inspectors) for the primary purpose of producing management information reports.

Since the TAMP project was designed, the STS appears to have made a decision to test the concept of centralized processing of tax returns in a facility separate from any of the local tax offices and to include the processing of personal income tax returns as part of the test.

**b. Recommendations**

A plan and schedule should be developed for completion of systems development, initial and parallel testing and for beginning of live operations with the new system in all pilot offices. This plan should cover all modules initially planned, but only after a decision is made on the degree of need for the audit selection module and the conversions of all databases to a new format. The need for these modules should be weighed against the need to have an operational system. If all databases need to be converted, specific persons should be made responsible for that effort. The plan should indicate the responsible officials and these should be accountable for delivery of their work products.

The testing phase should be formalized. For this purpose, a team composed of Computer Center officials and staff of the local offices should be established and relieved of all current responsibilities. This team should be charged with the responsibility of testing the new systems capabilities to ensure that all possible error conditions have been detected. A formal error reporting procedure should be instituted and the Computer Center should be held responsible for correcting all detected errors within a reasonable time frame. A specific official at Nizhny Novgorod Oblast and Volgograd Oblast should be identified and be responsible for certifying that the system is indeed operational at some point in time.

A review of the local office organizational structures should be undertaken with the objective of eliminating overlapping and duplicative activities within the current organizational environment.

A review should be undertaken of the feasibility of including the personal income tax in the pilot test in Nizhny Novgorod and Volgograd. The RNIVTS-developed software should be revised only if inclusion of the personal income tax in the pilot test will not delay the operational roll-out of the current system.

The application software should be revised to operate in a centralized environment, in the proposed Volgograd Oblast’s Data Processing Center, but only after it is certified as operational under the original concept.
Issues and recommendations for the medium term

a. Issues

When considering expansion of the Nizhny Novgorod and Volgograd pilot project modernization efforts to other Oblasts, the STS authorities will face a number of important options regarding design and implementation of the computer system. Should the system be centralized or decentralized? Should current operations be computerized first, and then procedures and organizational structures be changed? Should immediate on-line links be established with the banks, counterpart agencies and some of their largest taxpayers? These few examples of common questions raise the more fundamental issues of which strategy should be followed and what reforms have to be considered to ensure the success of the computerization and the overall modernization efforts.

One decision apparently has already been made to test the concept of centralized processing of tax returns in the Volgograd region in a separate facility referred to as a Data Processing Center (DPC) and to use that office as a pilot for the next stage in modernization. Although it has not been explicitly stated, implicit in the decision to establish a DPC is the decision to create a separate Data Processing Department and to redesign the work of the pilot local office(s) in Volgograd. However, the Nizhny Novgorod pilot project continues on the present de-centralized course.

The Data Processing Department presumably would be responsible for the processing of returns, assessment and adjustment of documents, correction of errors, and maintaining a computerized revenue accounting system while the pilot local office(s) presumably would concentrate on enforcement functions in a functional alignment.

The decision to set up the DPC has some important implications for the work of the local offices within Volgograd. Centralization of processing in the DPC will also require a greater degree of standardization of local office organization and processing of output from the computer systems and the response from the local tax offices to the computer systems.

Implementation of computer systems is a risky undertaking and usually of fairly lengthy duration. There are many tax offices, large numbers of tax returns and other documents to be processed, and many different taxes. International experience has taught us that to reduce the risk of failure, using a pilot project approach offers the best chance of testing new systems and procedures with controllable volumes of work and with one type of tax.

Because the decision seems to have been made to test the concept of centralized processing of tax returns, the next decision that needs to be made is on the selection of an appropriate local tax office as part of the pilot test. Although there are many approaches to pilot office selection, beginning these changes with a Large Taxpayer Inspectorate (LTI) has many advantages. The LTI represents a major source of revenue yet it affects a relatively low volume of work and a limited number of staff. It has the advantage, moreover, of providing high visibility and high-level attention to the project because of its effect on the total revenue.
If problems develop during implementation, the pilot office can always revert back to manual procedures. If it is successful, however, and provides the benefits the designers of the computer systems anticipated for it, it makes it easier to convince the balance of the organization to adopt the new procedures and techniques.

Simultaneous automation of all taxes is not always feasible, and to minimize the difficulties of implementation, it is advisable to select one very important source of revenue, but administratively relatively simple, as a starting point. The Value Added Tax (VAT) is a perfect candidate for the test case. The returns and their processing are relatively simple, yet its revenue is of major importance to the government.

Finally when the one tax has been successfully computerized a replication of that process in another office or other offices is a fairly simple matter. While the first tax is being installed in a second office, the first office can begin the computerization effort with another tax.

In sum, modernization of tax administration requires that a number of actions be taken in parallel:

1. Computer hardware needs to be acquired based on an analysis of the current and projected workload and a software system has to be designed and developed;

2. Procedures in the pilot offices have to be re-engineered to take advantage of the power of computers to take over routine functions from tax inspectors;

3. The organizational structure of the pilot office has to be determined and, if more than one pilot office is proposed, standardized;

4. Manual processes in support of the new computer systems have to be changed;

5. A self-assessment system has to be introduced, with changes in tax forms, processing procedures for tax forms and payment orders, assistance to be provided to taxpayers, and changes in the methods of selection of taxpayers for audit.

To introduce those changes the “owner” of the system must be in charge of the changes, and this will require new procedures and organizational structures at the STS level:

An essential component of the implementation effort is a policy-level modernization steering committee whose task should be to initiate, guide and review computerization and modernization projects within the STS.

In addition, an implementation team under the Deputy Head for Information Technology needs to be created. This team should be given the responsibility to design the computer system, procure the hardware, purchase or develop the software and establish the data processing organization. Representatives of primary users, i.e., taxpayer services, registration, collection and audit need to be
included to ensure that systems designed are responsive to the needs of these activities. In addition, organizational changes resulting from computerization will have an impact on duties of staff, their location and their training needs. It is important, therefore, that staff from the human resources organization and the training office should participate in these activities.

The organization of the TTI and STI offices has to be changed so that successful implementation of computer systems is complemented by changed procedures and forms of work, and every location that maintains a computer system, (whether a separate Data Processing Center in Volgograd, or operations in TTI offices in other Oblasts) requires a specific organization in charge of data processing.

Attention must be given to training, for both the direct users of the system (e.g., data entry clerks, computer operators, managers of data processing, and the field enforcement officials who need to be trained in use of the output from the computer for audit and collection programs).

Systems development has to controlled by the STS and a disciplined approach taken to control schedules, development and testing.

Finally, modernization to be effective will require high level support for changes in the laws and/or special exemptions from current laws to test a variety of new concepts.

b. Recommendations:

At the STS level:

! Establish a Steering Committee to be Chaired by the Head of the STS to provide policy guidance to the modernization effort. The steering committee should be composed of Deputy Heads of the STS representing various areas of the administration that are likely to be affected by automation. The Deputy Head in charge of Information Technology and the representatives of the finance, accounting and personnel departments should also sit on the committee.

! Establish an implementation office under the Deputy Head for Information Technology and assign to him the responsibility for expansion of the modernization program beyond Nizhny Novgorod and Volgograd. The Deputy Head for Information Technology should report to the Steering Committee. He should also be responsible for coordination with a variety of outside organizations (e.g., Tax Police, Pension Fund, Customs Committee, Banks) on topics of mutual interest such as use of a single, universal taxpayer identification number, exchange of information, etc.

! The implementation office should establish a number of working groups that would carry out a series of parallel actions to ensure that a coordinated modernization effort is under way. Some of the necessary working groups are listed below. Others may be created as the need arises:
A modernization work group should be put in charge of developing a strategic plan for national deployment of hardware, application software and implementation of complementary organizational and procedural reforms. This office, with advice from methodological departments, should determine how the system should be developed over the medium term and for designing the overall computer system. This work group should be responsible for procurement of hardware and software for all segments of the nationally-designed system.

A systems development group should control application development for the expansion beyond the pilot offices. The office should combine the currently approved requirements into one document, a Top-Level Systems Requirements Document. This work group should be responsible for carrying out a systems test in coordination with the program developers. The office should appoint one official who should be responsible for developing a systems test, for preparing the test data and certifying the operational readiness of the new system(s). Applications development will require that this work group work closely with systems developers who should be located primarily in Moscow. Portions of systems development, under proper control, could be “sub-contracted” to other offices, however.

A work group in charge or organizational redesign should be created and include representatives of the methodological departments at the STS level and participation of the affected pilot regions. This work group should re-engineer the work of the tax inspectors at the pilot offices to complement the new systems being developed. This work group should be responsible for moving the local offices into a functional organization structure as computer systems take over the routine work of the tax inspectors. Together with the modernization work group, this group should determine the sequence in which the Oblasts should be modernized.

A work group in charge of changes in processes and procedures should be created and include representatives of methodological departments. Their task should be to implement the concept of self-assessment, that is to redesign tax forms and instructions, develop training programs for tax inspectors in their new, functional responsibilities, and develop internal instructions for operations under the new system.

A work group in charge of promoting self-assessment: instructions, information, consultations, etc.

These recommendations imply that the STS will make a decision to use/improve uniform standards and software and procedures in all 89 STIs. This would be a significant shift in current policy.
(at least until recently) where each STI has been allowed and often encouraged to experiment with their own innovations and approaches.

At the STI level:

! Establish a working group to develop software for regional and local tax applications, but keep them separate from the Federal-level system. (The STS should ensure that only “run-time” application programs are transmitted to the pilot regions).

! Appoint an official to oversee testing of new applications and certify their readiness to be put into operational status.

! Coordinate with the STS on design of a standard organizational structure for TTI’s that are part of the pilot project.
Chapter I  - Reform of the field organization

Structure of field organization

a. Findings

The initiation of the TAMP caused a very preliminary form of a functional structure to be introduced in the Oblast-level State Tax Inspectorates (STI) as well as in many of the pilot Territorial Tax Inspectorates (TTI) of the Nizhny Novgorod and Volgograd Oblasts. The two STIs, however, deliberately took quite different approaches to organizational re-structuring.

The Nizhny Novgorod STI did not mandate the move to the functional organization nor specified its structure, but left it up to the Head of each TTI to determine the form of the functional organization.

The Volgograd STI, however, has made the functional alignment compulsory for all TTIs to ensure consistent procedural uniformity. A number of laws and normative documents has been prepared for reference purposes. In the opinion of STI management, the availability of these guidelines has enabled them to improve communications with the TTIs and made clear to them the STI’s expectations.

Both STI and TTI management officials in the Volgograd Oblast were pleased with the results achieved through the functional organizational changes. They felt that the organizational alignment was having a significant positive impact upon tax administration within their offices. They claimed that by introducing specialization many routine tasks have been eliminated from individual tax inspectors, thus freeing them for more complex duties. This freedom from routine tasks enables them to devote more time upon enforcement actions concerning delinquent accounts, stop-filers, and tax audits.

Both STIs made decisions regarding their organizational structure without official approval from STS Headquarters because guidance in this area was not forthcoming. Although these STI decisions were essential for control, proper direction from higher-level management, management of resources, evaluation of performance, and effective communications they were not coordinated and, as a result, variations exist in organizational alignment, in different procedures, inconsistency in training efforts and differences in emphases on areas of responsibility.

All management officials in both Nizhny Novgorod and Volgograd felt that the establishment of units for taxpayer assistance has been very helpful in improving relations between taxpayers and tax administrators.

Generally, reception areas for taxpayers have been provided in local offices. Brochures describing taxpayer obligations, written in simple non-technical terms, have been developed for several different types of taxpayers. Use of written and visual media has added to the knowledge level of the taxpaying public. Positive relations have been established with the press and tax officials have used this source in getting their message out to the public. Mrs. N. Kuznetsova, the head of the Volzhysky TTI,
in Volgograd STI, developed an attractive book that is distributed to local schools to inform students about the tax system. In Nizhny Novgorod hot lines have been established in all TTI’s for taxpayers to consult with staff members and to get information regarding tax matters, public reception rooms have been provided for personal contact with tax officials, and Heads of TTI’s have established office hours for meetings with taxpayers. In addition, the STI is publishing its own magazine and, along with the Tax Police, a fortnightly newspaper for supplying information to taxpayers.

There are variations between the specific functional alignment of the two STI offices, Nizhny Novgorod and Volgograd. The review disclosed that in Volgograd the functional alignment of the STI did mirror to a great extent the alignments of its TTIs. Since regional offices have a different tax administration role than a TTI there are operational necessities for slight variations. For example, oversight responsibilities of the STI require specific managerial and technical expertise that is not required in the TTI environment.

The Nizhny Novgorod's alignment concept was not as clear. This alignment did not mesh as well with the local office structure. Of the two approaches, where the STI and TTI mirror somewhat each other’s alignments appeared to be the superior approach to achieve a more effective management of the organization.

The Volgograd TTIs have been generally organized along the following lines: (a) Informational Work with Taxpayers, (b) Electronic Data Processing, (c) Documentary Control (Audit), (d) Delinquent Taxpayers, (e) Personal Income Tax, (f) Accounting, Analysis, and Statistics; and (g) General Services (Support). However, there were still individual differences in the structure of the two offices visited, Volzhsky and Dzerzinsky TTIs. Although both offices are organized somewhat along functional lines, some significant deviations from a functional alignment appear in the audit and collection of arrears functions. Certain management and work processes of these functions are split among units with multiple process assignments rather being consolidated into these compliance activities. In addition, the administration of the Personal Income Tax is a completely separate activity.

The functional restructuring of the local offices is causing management to focus upon the need for specialization among employees and the necessity to consider how to retain highly skilled employees. Local managers were generally positive concerning the quality of their staffs and are currently experiencing minimal attrition, however this is expected to become a problem as the economy improves and employees become highly skilled in specialized areas.

There are significant differences in the sizes of the local offices. For example, in the Nizhny Novgorod Oblast, the smallest TTI had a staff of 16 while in the Volgograd Oblast the largest TTI had a staff of 250 employees. The Heads of STI’s at both regions believe that some types of consolidation of services is appropriate for the smaller offices. They believe, however, that decisions of this nature, which have strong political overtones, can not be made without leadership from the STS.

Overall the general morale and attitudes towards the tax modernization efforts were very positive. There were some concerns voiced about the pace of computerization and some misunderstandings do exist of what modernization is to accomplish. Without exception all officials
expressed very positive opinions regarding the change in attitude and procedures concerning moving their organizations into a taxpayer (customer) assistance mode. Management officials believe that their organizations are adopting the proper proactive approach to rendering positive assistance to their taxpayers, thus enabling them to be better taxpayers and have a more positive attitude about taxation. Feeling were expressed that they have had to develop and implement many programs, instructions, organizational structures, tax forms, electronic data processing programs, and training which should have been handled by the STS. The STI’s were required to devote budget funds, staff-power and managerial supervision that could have been available for operations. They were pleased to be a part of the process and were only observing that many of the tasks they determined were needed to implement modernization should have been handled at the STS level.

b. Issues

Unless there is consistency in the organizational structures of the local offices it will be impossible to create one computer system that will operate in any TTI. Furthermore, inconsistent structures will prevent the development of any type of identical workflow systems that ease management’s task of locating work stoppages and bottlenecks. Consistency would also simplify the communications process between offices regarding specific issues.

As specialization becomes more common place the need for specific skills training will also be acknowledged. The practice of having a somewhat flat salary level among all tax inspectors will ultimately create problems for these organizations. As an example, employees involved in field audits will develop professional level tax law, accounting (of the western style profit based system), and tax auditing skills. The achievement of these marketable skills will enable them to go into the market place economy to demand and receive a substantial increase in wages over and above what the tax inspector’s occupation now pays.

The STS Headquarters organizationally has been in a state of flux since its inception. Major reorganizations have been common place; organizational sub-units have been shifted among major functions, and top-level management official come-and-go. These constant upheavals have clouded communications lines, impaired decision making and left many projects without strong sponsors. Currently, another re-organization is in process. Until the STS comes to grips with what its role should be and what the best organizational structure is to accomplish this role, the modernization effort will continue to flounder. Without stability and clear policy guidelines the STS can not be an effective force in providing the leadership necessary to bring about real change in tax administration activities across the Russian Federation.

There are currently 89 regional state tax offices and almost 3000 TTIs within the federation. The inability of the headquarters office to come to grips with its own organizational problems has created a management by directives, decrees, and reports climate. Day to day communications are lacking and as a result the STIs are forced to make timely decisions on important matters without STS input. In addition, regional and local governments, often with their own agendas, have access and input into the local decision making process. This is a situation that is tailor made for inconsistencies and conflict. To compound the problem, taxpayers are caught in the middle. Revenue sharing by local tax
offices can create a climate where the safeguarding of the taxpayers rights, the maintenance of a corruption free tax administration and consistent treatment of taxpayers are jeopardized.

There are a number of important ingredients necessary to have in a tax system in any country. First, there is the need for legislation establishing taxation and a tax collection organization. The other three ingredients for the system center on the administration of the tax administration organization. First, the organization must be able to receive and process tax documents and payments. Second, there must be procedures to assure compliance with the laws and processing requirements. Without compliance to assure proper filing, payments, identifying citizens who want to drop out of the system, make mistakes, or deliberately attempt to evade taxes by not paying the proper amount, the system would soon breakdown. And third, there is need for logistical support of the tax organization. While this is an over simplification of a modern system needed in our complex societies of today, these ingredients help establish the need for the functional type organization that is in the formative stages in Nizhny Novgorod and Volgograd STIs. A clear delineation is needed between these three major components, processing, compliance and support from all levels including the STS, the STI and TTI organizations.

The introduction of modern tax administration methods in the STI and TTI offices will require major functional realignments. Implementation will not be successful unless the process is well conceived, adequately documented in written guidelines and clearly communicated to all levels of the organization. Sample functional statements reflecting the organizations’ duties are shown in Appendix 4.

The following operational units need to be created and should have organizational components in national, regional and local offices, which follow recommendations that have been made in the past by the IMF, the World Bank and others familiar with modern tax administration, i.e., to organize the STS at the federal, regional and local levels along functional lines. Many tax administrations set up their structures so as to make use of specialized skills, use computers to uniformly handle routine tasks, and thereby improve efficiency. An additional critical task of the organizational structure of tax administration is prevention of corruption—either embezzlement or bribery. The STS at every level has to be organized in such a way as to promote the self-assessment system, allow for the specialization of staff and offer a salary structure sufficient to retain skilled employees and reap the benefits of modern technology. One salient feature of the functional organizational structure described below is to minimize face-to-face contacts on routine tasks and have a separate appeals structure. While there may be a political necessity to have a TTI in every local jurisdiction, however, each of these TTIs does not need to perform every function. It is essential that all employees understand the mission of their organization. It is important to emphasize again that there must be complete, clear written guidelines available for all personnel that are understood and followed. Guidelines must be rationally organized, simple to understand, precise as to procedures to be followed, consistent in format, updated regularly and adequately indexed to enable employees to research topics easily.

A typical TTI should have the following organizational units:
**Taxpayer Services:** The taxpayer service unit that would register taxpayers, provide technical assistance to taxpayers, reply to correspondence from taxpayers on such issues as where and when to file returns and other documents, provide information on account balances, conduct taxpayer education seminars, and handle public affairs.

The purpose of this function is to help taxpayers fulfill their legal obligations by informing them on what they have to do. This information dissemination can take the form of use of mass media, taxpayer education in schools and seminars, and one-on-one help via telephone. In the registration process taxpayers are informed of their obligations such as what declarations to file and how to establish settlement accounts. Written inquiries for assistance are answered by this unit. If taxpayers do not know the amount of their arrears they come to this unit. If physical persons need help to estimate the amounts they will have to pay based on their income this unit provides such assistance. If an adjustment to the taxpayers accounts declaration is required because they paid too much this unit provides assistance. The concept of taxpayer service is understood in Nizhny Novgorod and Volgograd.

**Processing of Data and Tax Declarations:** This unit receives tax returns and declarations from taxpayers, performs visual editing and mathematical verification, inputs declarations into the computer or system, creates and maintains databases, produces the listings of protocols of differences, implements archiving of paper documents, and produces a variety of statistical and accounting reports.

The tasks performed in this function were necessary long before computers were used in tax administration. Computers allow these tasks to be performed more efficiently. More important, however, is that modern technology allows the data from declarations, registrations and banks to help tax administrators improve compliance by preparing reports that are generated from information on registrations and declarations. A trained transcription operator should be more efficient at transcribing data from a declaration into a computer than a person with advanced accounting skills. The skills required to visually inspect a declaration, ensure that data fields are completed and determine if contact should be made as a result of a listing of protocols of differences are not the same as the accounting knowledge and skills necessary to conduct a field audit of a large legal entity. For example, many people are capable of performing the clerical type activities in a cameral audit. Fewer people have the skills for field audits, therefore, it is crucial to separate these functions and not waste the skills of the auditor on what are essentially clerical tasks. Face-to-face contacts with taxpayers would not occur within this function. It is basically a service function that takes data from registrations, declarations, banks, audits, enforced collection of arrears and other sources and stores it. Software programs identify taxpayers that should be audited, are in arrears, have not filed etc. and also accumulate data for various systemic and ad hoc reports. This function does not perform enforcement functions, however, in the processing of declarations the visual review or computer based tests will detect errors. These errors should be resolved by means of correspondence or telephone calls. Similarly if a taxpayer does not file a declaration or owes an arrears a notice may be computer generated and mailed or a phone call may be made.
**Collections:** This unit is in charge of collection of arrears (after a letter requesting payment has been sent), follow-up on stop-filers (after a letter has been mailed asking taxpayers to submit returns and declarations), and monitoring of arrears.

When all the declarations for a given period have been processed and the computer has detected that taxpayers have either not filed the required declarations or have filed but not paid or underpaid their taxes, the collection unit takes over the enforcement responsibility at some time. Generally, tax administrations do not begin enforcement actions until taxpayers have been notified, by mail, of their unfulfilled obligations and given a chance to explain their reasons for non-filing and/or non-payment and given a chance to do so. Collection of arrears may require arresting the taxpayer’s settlement account, obtaining information to ascertain ability to pay and counseling to prevent the accumulation of additional arrears. Investigation of nonfilers involves locating them and determining if a declaration was due and causing taxpayers to file if required. Compliance also requires prioritization of work and preparation of files to be transmitted to the Tax Police for arrest of property or application of criminal sanctions. If a face-to-face contact with taxpayers is necessary to correct what the taxpayer reported on their declaration, enforce payment of arrears, or enforce filing of delinquent declarations this is the only unit that performs this activity.

**Audit:** The audit unit performs field audits which are normally conducted at the taxpayers place of business. They may also conduct office audits performed at the TTI in the presence of the taxpayer. These audits are not to be confused with the present cameral audits which are essentially part of the declaration perfection process and performed in the some rayons in the Processing of Data and Declarations unit. An audit whether performed at the taxpayers office or at the TTI involves delving beyond what is reflected on the face of the return. It requires an exploration of the taxpayers transactions, the movement of funds from the legal taxpayer to those who own the entity. It requires investigative, accounting skills and knowledge of tax laws. In contrast, what is termed a “cameral” audit does not probe beyond what is shown on the declaration and may be shown on the data file from previous declarations or registration information. Accounting or investigative skills are not crucial in the perfection of declarations performed in the Processing of Data and Declarations unit.

If a large taxpayer unit is included in the TTI it will require assignment of the best, most skilled employees to the unit, in order to conduct in-depth audits and perform the financial analysis necessary to determine the liability of large taxpayers. Also, the Largest Taxpayer Inspectorate (LTI) may monitor taxpayers’ compliance with their payment obligations. If the LTI unit is stand-alone, it would also include a taxpayer service and processing of data and declarations unit.

An effective audit program is essential to maintain taxpayer compliance, whether it is based on a self-assessment system or not. It is imperative for tax services to have a well trained audit force with heavy emphasis on accounting, tax auditing techniques and tax law understanding skills to deal with today’s complex business structures. There must be a clear definable audit organization from the STS Headquarters, through the STIs and into the TTIs. The audit organization should not be divided into component parts and interspersed into other unrelated organizational units. When this done the essential continuity required to assure a competent, incorruptible, and effective audit organization is jeopardized because the essential inherent organizational control is diluted.
One of the major tasks of the STS audit function should be to develop increasingly sophisticated computerized audit selection systems to identify those declarations that are most in need of audit and will produce the maximum revenue. This will result in a more effective utilization of scarce audit staff years because the audit activity is then directed towards those taxpayers presenting the greatest risk to budget revenues. The system should also identify enough declarations by type of taxpayer and type of business to assure enough of an audit presence to keep taxpayers always concerned that they can be examined if they do not file proper returns. Realistically this is a very complex task and will take a few years to gather sufficient information to assure a system is developed that does identify these type of audit situations needed to assure widespread taxpayer compliance.

**Logistical Support/Human Resources:** This unit handles personnel matters, takes care of facilities, training, internal business such as budgeting, contracting, small purchases.

This is a support organization which has no contact or dealings with taxpayers. It is responsible for activities involving employees other than direct supervision such as hiring, paying, job classifications, etc. Internal budgeting, providing of space and equipment, building security, building maintenance are included. Training is also in this unit. This unit provides the logistical support necessary for a TTI to operate.

In addition to the functions listed for the TTI-level organization, the STI needs the following functions that normally should not be necessary at a lower level organization:

**Appeals:** An appeals function should be placed at the STI level. Under the present system managers in the TTI serve the additional role of adjudicating appeals by taxpayers. Because appeals can be very time consuming, it can leave managers with little time to manage their operations. The appeals process also requires managers to retain their technical tax law skills and reduces the checks and balances, when managers of the initiating tax inspectors are also in the position to negotiate settlements. The appeals officers must have an exceptionally high level of accounting, investigative and tax law skills. They must be independent but if they do not support the tax inspectors recommendations they must explain why in a detailed report. Placing this separate appeals function at the STI, not in the TTI management hierarchy helps to ensure greater integrity.

Tax legislation is generally complex and often quite subjective and as result is subject to various interpretations. Naturally as tax inspectors make technical decisions during audits and other compliance issues there will be disagreements. One of the strongest assets of a tax administration is to ensure that taxpayers have the right and the appropriate vehicle to seek redress of their grievances concerning

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6There have been any number of recommendations made to the STS on audit selection beginning with the IMF mission report of 1992. The three most recent papers on this subject are: *Towards Developing an Audit Selection Model*, by Brian Erard, June 1997; *Review of Alternative Approaches to Audit Selection*, Brian Erard, May 1997; *Methodologies for Developing a Field Audit Plan*, GSU Tax Administration Technical Assistance Team, July 2, 1998.
decisions by the tax agency. It is a costly process for the tax service if the taxpayers to resort to the courts to address these disagreements. The most effective way to achieve this admirable goal is to have an independent appeals organization with the authority to resolve disagreements. Those cases that then come to an impasse after the appeals process can then be taken to court if both sides believe it is to their best interest to do so.

**Internal Audit:** A properly designed organizational structure will have built in checks and balances. The internal audit function helps to prevent corruption. In addition this organization ensures that STS-wide procedures are correctly followed and that the procedures themselves are reasonable. An external organization is necessary to insure that these internal procedures are followed. If procedures are not adequate to accomplish given tasks, the internal audit should recommend changes. Internal audit must retain its independence while having unrestricted access to TTI processes. Although internal auditors advise the head of the TTI and respective functional managers they should report to the head of the STS through the STI.

**Criminal Investigation:** This activity is conducted in Russia outside the STS, by the Tax Police. This organization has an inconsistent record of cooperation with the STS. Often collection cases and criminal referrals are not acted upon or the local tax offices encounter significant delays. Ideally, the STS would be better served if the tax police responsibilities were reassigned to the STS organization. Parallel organizations of this nature often have conflicting priorities and an internal criminal investigation unit would be far more responsive and have similar goals, which is this case is effective tax administration. Perhaps this consolidation will be effected under the new Ministry of Taxation recently approved as a successor to the STS.

c. **Recommendations**

**Short term:**

! The STS should use the Volgograd STI and TTI structure as a base-line and develop an organizational structure that should be further rationalized by elimination of overlapping of activities. There should be consistency required in the structures of the two pilot test STIs. Any changes in the organizational structure should be approved by the appropriate organization within the STS.

! The STS should catalog a common process guide (sometimes called the Concept of Operation (CoO) and described later in this document). The document should outline how the current computer system should operate and how it will affect the organizational structure of the pilot offices. The STS Personnel Department can create and publish training and management guides that amplify the approved processing policies documented in the CoO, which will then become the current system Functional Baseline. The document must be sent to all STS organizations, which should comply with standard operating guidelines. The current system will form the basis for modernizing the tax system incorporating some or all of the functions described in the recommendations.
Medium term:

STS level:

! The appeals function should be established at the STS and STI levels to assure independence of decision making from the organization that originally made the initial determination with which the taxpayer is in disagreement. Appeals employees should be assigned to the STI headquarters and have the taxpayers appear there for the hearing. For remote areas the appeals officers could travel to the areas where the taxpayers are located and hold the hearing in a local TTI offices.

! The STS should publicize, internally at least, interpretations of obscure points in the tax laws to ensure uniform implementation throughout the territory of the Russian Federation. This should be done through the issuance of legal rulings that bind the STIs to follow and the issuance of regulations that cover all facets of work of the tax inspectorate personnel and through which the STS ensures that work is carried out in a consistent manner throughout the Russian Federation.

! The Tax Police functions should be merged with the STS. Tax Police personnel should be allocated to three activities: (1) Internal Tax Office Inspector’s function (organized at the National and STI level with no notice inspection authority over all Inspectorates). (2) A Collections function that executes the natural consequences of an overdue tax arrears. And (3), development of an Operative Audit function (defined as a no notice audit activity which operates with control / police and customs third party reports). If this alternative is impossible to achieve, then STS should insist upon having it’s employees serve in a joint capacity with the tax police employee assigned the case.

Regional level:

! A regional TAMP Implementation Committee comprised of members of regional and local offices should be established to oversee the implementation of TAMP at the local level. The committee should also address the question of what is the appropriate structure for smaller TTI’s, what degree of consolidation of TTIs offices is desirable, what work processes need to be maintained in the smaller TTI’s, which ones should be carried out by larger TTI’s and how this impacts the staffing of these TTI’s.

! An Implementation Timetable should be developed for regional issues, which require regional and local resolution.

! Regional management should select a full time project manager, assigned to the regional office, to oversee the overall implementation of the TAMP modernization, including the Data Processing Center in the Volgograd Oblast.
Regional management should coordinate with the STS Headquarters office concerning viability and establishment of independent appeals and internal audit organizations that should be tested in one or two of the test regions.

TTI Level:

The management of the TTIs should, on a regularly scheduled basis communicate to employees what is happening concerning TAMP activities to dispel rumors and inform them as to the impact of the proposed changes.

The TTIs should continue to provide improved taxpayers assistance and education with the underlying goal of enabling taxpayers to become more self-proficient in meeting their tax responsibilities.

Functional statements:

Management officials often fail to communicate with subordinates concerning what is the purpose of the organization, what is trying to accomplish, how is trying to accomplish its goals, what are its objectives, when important issues will be implemented and what will be the impact on employees. This failure is predicated on the fact that many officials do not believe that it is necessary or they are too busy with every day events to give the time and effort to assure communications within the organization are accomplished. Most experts in the field of Management and Organizational Development agree that every organization needs to be able to concisely communicate its perception as to what is its true mission. The STS should develop functional statements for each organizational element or unit of the pilot TTIs, stating clearly and concisely its overall role. This should be expressed in terms of what the organization produces and for whom. In addition each major organizational unit should have its own official functional statement containing a description of why it exists. The development of functional statements enables the management of the organization to ensure that functions for different organizations do not overlap or contradict each other, thus helping to rationalize the organizational structure. Appendix 7 provides examples of functional statements that should be developed for each organizational unit within the pilot TTIs.

The designation of a functional statements by an organization and its effective communication to employees at all levels, provide the additional benefit of having all of its employees know what is the role of the organization. When employees are dealing with the public they should represent what their organization is responsible for and what services they should perform. Simply speaking, if the employees know what is required of them, they will more likely to perform up to expectation.
Position Descriptions:

There will be many changes in employee work assignments following the implementation of functional organizational components within the STS. Employee work responsibilities should be described in a document form and presented to each individual. The position descriptions were prepared to serve as an example of what should be considered when writing such a document and are included in Appendices 3 to 6 for reference. These sample descriptions are general in nature and are not designed for an employee with a unique specialization. Actual work processes are generally not included in a position description because the document is directed towards the skills and work routines of the employee. Position descriptions have many uses and most large tax departments use them effectively for communicating to the employees what personal expectation the organization has established. As an example, if a disciplinary action towards the employee is contemplated, the position description identifies the skills and attributes the employee must possess and demonstrate. In addition, the employee’s performance can be measured against these expectations.
Chapter II - Progress towards self-assessment

a. Findings

Although there has been a move towards a better functional alignment and implementing a new approach towards the establishment of a taxpayer assistance organization, overall the progress towards reaching the goals of a self-assessment system has been minimal.

Results have been mixed regarding the establishment of a more logical and consistent functional structure in the pilot STIs. However, as a natural by-product of the attempt to establish a functional structure, there has been some specialization of employees’ duties and the pilot office organizations are beginning to move toward a more professional staff in the area of taxpayer services. In addition, some attempts were made to modify tax forms and accompanying written instructions.

In the areas of declaration filing and tax returns processing, the current approach in the two test STIs still requires extensive, and often multiple, face to face contacts with taxpayers. Taxpayers often are required to come into the TTI offices to determine what is the status of their tax accounts. One TTI established a separate work room equipped with computers and printers for their large taxpayers to use in accessing their own tax account to assist in the reconciliation between the taxpayer and the tax office.

Extensive taxpayer education approaches utilizing various types of media by the two pilot regions did attempt to better communicate with the taxpaying public. These activities were focused towards assisting the taxpayers concerning their filing requirements and where and what type of services were available from the tax offices. Office spaces were remodeled and redesigned to improve the taxpayers’ opinions of the professionalism of the staff and to provide services that had not been readily available in the past. Staffs were re-organized and special training was given to increase skills of employees who were specializing in specific areas of expertise.

b. Issues

STS management is currently trying to cope with organizational structures and work processes that have been established during the 7-year span of its existence. At the same time the number of taxpayers has increased, the tax administration has struggled with labor-intensive processes, and budgetary cuts that require reductions in staffing they are faced with reducing enforcement activities. The current system requires employees to be involved in preparing and checking declarations at the time that they are submitted. A drastic change in organizational procedures is necessary to cope with this ever-increasing workload and stemming the ever-increasing rate of non-compliance with the tax laws. The additions of computers to assist in the current work processes will not alone help significantly in meeting the demands placed upon the organization. The STS needs to change its organization and its procedures.

Often, a country interested in moving its tax administration into a self-assessment approach will find certain provisions of the law have an opposite impact. A careful review of tax legislation and any implementing regulations is required along with any other necessary actions to remove any major impediments.
Most modern tax administrations have been faced with this same basic problem and have found no viable alternative than to supply the taxpayers with sufficient support to prepare and file their own returns. The concept of developing a self-assessment style of a tax system requires from tax administrators to realistically evaluate their current approach and decide what steps should be taken and time frames should be adopted to facilitate self-assessment.

A self-assessment system basically eliminates the need for the taxpayers to have face to face contacts with tax officials unless the taxpayers need assistance or are contacted because of a compliance issue. Generally, taxpayers want to fulfill their tax obligations with a minimum contact with tax officials.

Under a self-assessment system, taxpayers have sufficient understanding of their tax obligations and rights to enable them to calculate their own tax liabilities, to complete their tax returns and to make the tax payments at the time required. To make this possible, the tax administration needs to develop simple, concise, and easy to complete tax forms that require a minimum amount of information. Instructions should be readily available along with the forms. Written in a simple style and complete in content, the instructions should limit the need for subsequent contacts with the local officials to get explanations as to how to interpret them. Taxpayers need to receive their information in printed form and have easy access to tax forms either by mail, at a local bank, post office, or other public institution, such as a library. Most taxpayers, therefore, only should have a face to face contact with tax officials on rare occasions and frequency of contact with tax officials should depends on the taxpayers’ level of compliance. For a self assessment system to work efficiently, the taxpayer must have easy access to tax forms which have been designed to be as simple as possible so that taxpayers are not discouraged from completing them. Tax declaration forms and instructions should be provided free of charge to encourage compliance. The design of the form and the writing manner adopted in both the form and the supporting guidance should be in user friendly style. Moreover the reporting information required in the forms should be kept to a minimum and should be readily available from the books and records of the enterprise. In addition the taxpayer should be able to submit tax declarations by convenient methods, e.g. by post or through a bank so that the entire process is kept as straightforward as possible. In addition to the simplification initiatives described above tax returns should also be suitable for computerized processing.

Self-assessment will place more responsibility on the taxpayer than the “traditional” system because each declaration must be prepared without the direct assistance and confirmation of a tax administrator. On the other hand, a self-assessment system is much more efficient for taxpayers as well as for tax administrators. Taxpayers no longer have to spend hours in long lines periodically waiting to have ‘their’ tax administrator accept the declaration, or return to the office repeatedly if the administrator is unavailable. Similarly, taxpayers can direct questions to a team of tax information experts, without having to locate or wait for their particular tax administrator.

When viewed from the perspective of the tax administration, a self-assessment system means that, while effort must be devoted to developing and distributing information to taxpayers, tax administrators can generally concentrate on the exceptions. Most taxpayers are likely to comply,
month after month, on their own, and tax administrators need to devote their time to dealing with the minority who do not.

It is essential that the organization and flow of the work processes within the tax administration be more specialized in order to best support and achieve the benefits of the self-assessment strategy. Tax officials should not be required to monitor specific taxpayers because they are not expected to have regular contact with most taxpayers. Instead, tax administrators devote part of the staff to facilitating and processing—usually by computer means—the flow of tax returns and payments from taxpayers, and as a result, to identifying non-compliance, while another part concentrates on the exceptions.

Important elements of self-assessment are that taxpayers must understand their obligations and rights, the process must be simple, they must believe that the tax system is aggressive yet fair in its treatment of all taxpayers without showing favoritism, that tax administrators are honest and not subject to undue political pressures, and there is an assessment of reasonable penalties for failure to comply. Taxpayers must believe an effective audit enforcement system is in place and there is an appropriate redress available when they disagree with decisions of the tax administration.

In order to support the introduction of self assessment in the pilot regions as part of TAMP, the STS was tasked to develop user friendly tax reporting forms, which supported the concept of self assessment. The project initially envisaged development of a new VAT form with further reporting forms introduced for other taxes e.g. excise and income tax, as the scope of project was extended. The new forms were to be of a consistent and uniform design, which was suitable for automated returns processing.

Since the commencement of the project in Nizhny Novgorod and Volgograd the content of the tax reporting forms issued by the STS, which are to be completed by legal entities, has changed little. The forms, which must be purchased by the taxpayer from the tax inspectorates, are produced on poor quality paper. The layout of the STS produced forms does not lend itself to computerized processing with the lines for completion often presented in a haphazard manner on each page. Moreover, the reporting information required by the current forms is, in some cases, now obsolete. But the laborious procedure necessary to amend a form has resulted in several of the forms remaining unaltered for many years.

The reporting order of the legal entity tax reporting forms is, in some cases, based on the requirements of the Russian accounting system, and as a result may not follow a logical tax reporting sequence. Moreover, as there is no central Directorate in STS to oversee form development there is little consistency of appearance in the range of forms, which have been issued. As a result the current forms are neither simple to complete nor compatible with computerized processing. In an attempt to resolve the latter problem Volgograd Oblast has redesigned the legal entity forms so that scanning techniques can be employed to collect the reported data. The content of the Volgograd forms however, remains identical to the forms produced by STS.
In contrast to the legal entity tax reporting forms, the personal income tax form, which is to be completed by physical persons, was radically redesigned for the tax year commencing 1 January 1997 by the Individual Taxation Directorate of STS. The form, which is produced on high quality paper and is issued free of charge to taxpayers, has been developed to be compatible with Optical Character Recognition (OCR) processing. In addition to a redesign of the form, a simple cartoon style guide was developed to assist taxpayers in accurate reporting.

Clearly great efforts have been made to make the PIT reporting document user friendly but the size of the form at 13 pages is still considered too voluminous. Furthermore although the new PIT form was designed to be suitable for scanning purposes. But it appears that due to the range of scanners presently used in the regions, some Oblasts, such as Volgograd, have reported that the form is incompatible with the scanning equipment employed in their TTIs.

Taxpayer services are one of the bright spots of the modernization effort. An example of proactive outreach program by Nizhny Novgorod to educate citizens concerning their tax responsibilities is their record in 1998 which resulted in the following:

- 503 Seminars conducted with 23,500 participants;
- 2200 articles published in the press concerning items of interest for taxpayers;
- 328 Radio announcements;
- 209 TV announcements;
- Four video clips produced and broadcast on prime time regional TV;
- 5000 Written replies to taxpayer inquires; and
- Press conferences to explain tax law and procedural changes.

With the proposal to establish a centralized data processing center in Volgograd, tax officials are confident that many of face-to-face contacts between tax officials and taxpayers can be eliminated. However, the data processing center will, initially at least, deal only with legal entities, therefore contact with physical persons and payers of local taxes, the PIT will continue to require extensive contacts.
c. Recommendations

As mentioned in the previous section, there are a number of fundamental functions in any modern tax administration system. The most important are: Registration of taxpayers and assignment of taxpayer identification numbers (TIN), Declaration processing, Revenue Accounting, Collection of arrears and of delinquent declarations, Information Document Matching, Audit of taxpayer books and records, and Management Information Systems. Modern systems implement these functions generally along the lines described in this section.

Registration of Taxpayers and Assignment of TINs:

The physical processes of registering taxpayers seemed to be relatively standard at the Nizhny Novgorod and Volgograd STIs. The Taxpayer Registration process is the principle means of identifying taxpayers in a computer-based tax accounting subsystem.

A legal entity taxpayer records the name of the business, the type of business, operation location, business bank accounts and other data at the TTI. Data collected on forms is entered into the computer system. The system automatically assigns a TIN with a coded value representing the region of origin. The data is collected and sent to the STI. Updated data reported to the tax office is entered into the database in much the same way as the original information was introduced to the system. Removal of registered taxpayers from the system occurs when the taxpayer notifies the tax office the business is closed. Some entrepreneurs are registered, although some do not have a registration requirement. At the same time, individuals are being registered in advance of a PIT filing requirement.

A modern registration system has four general requirements: (1) the database must be anchored by an effective Tax Identification Number (TIN); (2) registration data must be available nationwide; (3) registration data must be accessible in a timely manner; and (4) registration data in the registration computer subsystem must be maintained in an accurate state.

It is important for the STS to properly identify the taxpayers, and the TIN is a critical part of a computer-based subsystem used for this purpose. The TIN should be used to uniquely identify a collection of attributes relating to the taxpayer. A good TIN has certain well known characteristics. See Appendix 17 for a discussion of TIN requirements.

The national registration system should collect registration data based on taxpayers’ disclosure of information on applications for registration, on information from tax forms and on interviews with taxpayers. Generally, the person representing the business entity should meet with a representative of the Registration Department working with the public. The tax officials should review documents presented by the taxpayer and brief the taxpayer on his obligations. The registration documents, including copies of the business license and other supporting documents should be placed into a folder. The folder then should be sent for data entry.

The Registration Clerk should enter the registration data. The computer system should check the data entered against a summary database of all known taxable entities currently registered with STS.
nationwide. If there is a registration anomaly, the taxpayer should be notified otherwise, the taxpayer should be issued a TIN certificate. Bank account data should be received directly from the bank and become part of the current registration system.

Registration data should be collected initially at the TTI level but should be rolled up to the Regional and then the Federal level. The data should then be consolidated into a master file at the Federal level and then redistributed back to the Regional and TTI levels. The master file should be used by the TTI as a tool to identify arrears and registration problems.

Registration data must be as complete as possible as an aid to future compliance efforts. For example, legal entity data should include the names and Personal Identification Numbers (PIN) of corporate officers so that relationships among business entities can be identified as part of collection efforts.

Data should be accurate. There must be external sources capable of updating taxpayer registration data. Problems occur when taxpaying entities leave the tax system and there is no way of verifying, within a reasonable time, that this situation has occurred. This results in the Registration database being corrupted.

The TTIs should ensure that third parties (court or tax police or other organization) notify the tax office when an enterprise stops operating or if a customs taxpayer should pass away, there should be a third party supplying such data to the tax office. If the taxpayer relocates, the gaining taxpayer registration unit should notify the losing unit of the presence of the taxpayer in a new jurisdiction. The police, under current Russian law, can be a valuable source of presence information to the tax office. The office that registers persons for medical and pension benefits, for education benefit, and other social security entitlements, can be used in an aggressive program to maintain accurate registration data.

Finally, non-filer or stop-filer programs within the tax administration should be used to root out bad registration data in order to maintain a correct and current data base of active taxpayers.

**Returns/Declarations Processing:**

A modern declaration system separates the pay function, the taxpayer declaration reporting function, and the reconciliation function. The principle of self-assessment should be the guiding force for Returns Processing and the STS should seek approval to modify the tax law to accommodate and support the processing changes specified below:

The taxpayers should complete all the proper forms by themselves. The forms should be presented to the bank, and the payment part of a combined declaration or return should certify taxes paid (and tax accounts credited). The declaration should be either mailed to the TTI for processing or dropped in the proper container at the bank for transmittal to the TTI and subsequent processing. In either case the tax form should have both the liability and payment data as part of the same form.
Once at the Data Processing Unit of the Data Processing Center or TTI, the form should be scanned (if feasible), or entered into the information system manually. Entered data should be perfected by using a second data entry by a different operator, or corrected after scanning by a data entry clerk. The appropriate department at the DPC or TTI should correct data or math errors only if they were data entry defects.

Data entered into the system should be subjected to automated scanning which: verifies data entered on tax forms by the taxpayer. It should be noted that the verification of errors on forms and forms design are closely associated disciplines. Forms should be designed with intermediate calculations which can be used by computers to verify data entered by the taxpayer. If Optical Character Recognition (OCR) scanning is used, forms should be designed with intermediate sums that verify what the computer has read.

After data entry is complete, the computer system should:

Verify entries made by the taxpayer against statistical norms in a history and demographics database system. The principal purpose for such a check is to determine if the entries are credible given regional current economic conditions and past histories, as a first step in the audit selection process.

Verify returns data against reported third-party data, using the process known as document matching. After checking the current data and the state of the taxpayer’s history, if there is an anomaly in the declaration, a listing should be prepared for the appropriate department.

Taxpayer data that is seemingly not to be within expected tolerances should be identified for a pass through the audit selection system.

Declarations submitted late should trigger a fine or penalty, and the proper interest should be calculated and a notice sent to the taxpayer demanding additional payments.

Mistakes made by the taxpayer should be flagged and a notice sent to the taxpayer indicating the mistake and any amount still outstanding. In response, the taxpayer should take the notice to the bank, pay the amount and get the notice validated (with the amount paid), seal the document in the provided envelope and dropped into the Bank or TTI drop box. The payment data should then be entered into the computer system as any other information.

**Revenue Accounting:**

Tax Accounting and the taxpayer are responsible for ensuring the integrity of local accounts data. *The taxpayers* declare income, tax on income, other taxes, and make payments. Taxpayers have one simple account composed of many tax types. Payments and tax liabilities are broken down and processed based on tax types. When taxpayers report a liability they report the liability by type. When making payments, the taxpayers pay into the proper bank account for that tax type. It is common to have to make several deposits based on liabilities in different tax types. *Tax Accounting*
assists the taxpayer when it is necessary to move money from one tax type to another in order to satisfy liabilities. Tax Accounts also manages to refund overpayments.

In most modern tax systems Revenue Accounting subsystem is heavily dependent on receiving timely and accurate registration and declarations data.

If processing takes place in a DPC, daily updates of TTI databases should be accomplished by transferring files at night. TTI Accounts organizations should not have the ability to enter adjustments to accounts without documentation. Adjustments should be captured on a document and signed by both the taxpayer and the Tax Accounts Clerk. The adjustment then should be sent to the appropriate processing Center.

Collections and Non-Filer/Stop-Filer lists:

When declarations for a given period have been processed, a special registration database segment should be updated with an indicator that the taxpayer filed the required tax declaration. At the end of the processing period, this file should be compared to the registration database and a listing should be created containing all taxpayers that did not comply. The non-filer/stop-filer list should be provided to the head of unit in charge of securing delinquent declarations and collection of arrears. This person should assign specific inspectors to contact taxpayers to secure the delinquent declarations.

Once a month the Head of Tax Accounts should request, as currently, a listing of all taxpayers with arrears sorted from highest amount to lowest. The manager should verify with the bank that there is enough cash asset to satisfy the arrears, seize it and notify the taxpayer. If there is only enough to cover part of the debt the amount is seized, the taxpayer and the Tax Police are notified. While the Tax Police performs the collection function, most collection activities should be integrated with the Tax Office.

Information Document Matching:

To insure that accurate tax declarations are filed modern tax administrations receive tax related financial information from third parties. This reporting by third parties is essential to a self-assessment system. The tax administration is able to compare information received from third parties with the taxpayers’ tax declarations to verify that income or privileges claimed are correct. The information received also determines whether a taxpayer should file and is a critical supplement to the stop-filer program. Once the matching information is received it is then compared with the taxpayers’ declarations and tax returns are selected for audit, if appropriate criteria are met. Increased compliance is due to the fact that the taxpayers know that the tax authorities have received third party information and Appendix 17 provides more detail on the operations of an information matching program.
Audit:

An effective audit program is an essential component of a self-assessment system. If properly managed and supported with a competent information matching systems, the audit program can dramatically raise compliance rates over time and improve voluntary compliance.

The STS needs to develop a practical audit program that is capable of auditing the maximum number of declarations, using computer technology as an aid to identification of taxpayers most likely to underreport liabilities; providing taxpayers with computer generated and factual audit results, to demonstrate tax office ability to identify undeclared income, sales, and profits and maximizing the effectiveness of the Selection Phase of the Audit Process. The manpower cost in time spent on site auditing a taxpayer is the most expensive part of the audit process. Therefore, there should be reason to believe that undeclared and collectable revenue potential exists in excess of the cost of the audit.

The current functional alignment for the audit function has features which give management a somewhat better control over the entire process, yet parts of the function are still splintered among other functions at the regional and local offices. The centralization of the audit functions is essential for control, proper direction from superior management officials, management of resources, evaluation of performance, and effective communications.

An audit organization at the local level should be composed of the following elements: planning, audit selection, case control, taxpayer audit, technical review and a case closing function. Simple audits can be performed in the tax office while more complex audits are performed in the field. Of primary importance is the necessity to rotate inspectors on subsequent audits. Convincing arguments could be made for the same inspector to follow-up with the taxpayers for a subsequent audit solely because it will generally be the most effective utilization of time; however, there remain over-riding factors that mitigate against this positive feature. Important considerations supporting rotation is the elimination of taxpayer favoritism or in reverse taxpayer harassment and the internal control aspect, which helps to reduce the possibility of corruption. A third factor is that a different auditor often will find additional issues that can be overlooked time and time again by the same auditor.

Currently, the local offices use a manual selection process involving local knowledge, referrals from other agencies, (primarily from Customs and Tax Police) in addition to the selection criteria established at the headquarters and STI office levels in Nizhni Novgorod and Volgograd. A computerized program is being developed to capture tax return data from several periods for a taxpayer to use in the audit selection process and by field auditors to plan the scope of examination. For a more detailed discussion of planning and the operations of an audit program see Appendix 18.

Management Information Systems (MIS):

A management information system collects, analyzes, and presents business data in a manner that helps decision makers monitor and improve their business processes. An effective MIS might provide a variety of answers at different organizational levels.
At the STS Level the questions may be as follows:
1. What are the VAT, EPT, PIT and Excise Tax revenue forecasts for Russia?
2. Who were the largest taxpayers in each category, nationally, by region, by town?
3. What percentage of overall revenue does regional and city revenue represent?
4. What are the overall revenue forecasts by tax type by region?
5. Which regions under-performed their forecasts last quarter (based on economic data measured separately)? Which over-performed?
6. What is the GDP of the nation, region, and township?

At the STI Level the questions may be as follows:
1. What is the cost per ruble of revenue collection at any of the TTIs.
2. Which are the top five revenue-producing Inspectorates?
3. Which are the bottom five revenue producing Inspectorates?
4. What Inspectorates have the highest of arrears to total tax obligations?
5. What is the status of payments currently not capable of being posted.
6. Where are the highest levels of arrears being measured?
7. What Inspectorate audit teams are producing the best results?

At the TTI Level the questions may be as follows:
1. Who are the five most delinquent taxpayers by monetary value, by time?
2. Which taxpayers in the district have the highest arrears?
3. What percentage of taxpayers in the Inspectorate are in arrears
4. Who is the most effective auditor? The least effective?
Chapter III - Modernization of STS computer systems

The previous chapters of this report covered the progress in modernization of the STS organizational structure along functional lines and the related procedural changes required to establish a viable self-assessment system. This chapter discusses the central effort of the TAMP project, namely the development of a computer system in the pilot offices in the Nizhny Novgorod and Volgograd STIs. Although many elements go into the creation of a modern tax administration, three elements form the backbone of the system, namely the functional organizational structure, the self-assessment system and the supporting computer system.

TAMP Software Development

a. Findings

Systems usability: There has been an impressive amount of work accomplished by the RNIVTS in creating better automated support for tax administration through the TAMP software. However, the TAMP software met with less than wholehearted support.

From some end-user’s perspective the TAMP software was not as usable as the current FoxPro-based system. The complaints seemed to fall into three main areas: (1) problems introduced by the mouse, (2) screen content, and (3) screen layout.

Some users commented that screens contain data fields that are not relevant to the task at hand. The system provides no assistance to them in determining which fields are relevant and which are not and the users must rely on their own expertise to make that determination. Yet other users complained that the layout of some screens did not follow a logical order that matched the steps needed to complete a task.

System Performance: System performance problems may exist according to several of the inspectorate testers and managers who expressed concern about the performance of the TAMP system as compared to the current system. The concerns specifically addressed long query times, slow paging within screens, and long report generation periods. These problems occurred with empty or nearly empty databases.

Data Validation and Integrity: The TAMP software includes various mechanisms for ensuring the integrity of internal data. This is a key improvement over the current system. Chief among these mechanisms is the integrity checking built into the database. Such integrity checking forces an internal consistency in the structure of the data. Data entry validation is performed at the User Interface level by applying syntax rules (e.g. ensuring that a date is actually entered in a date format), database lookups for choosing a value from enumerated lists of values, and internal consistency checks (e.g. entered date value is not greater than the present date). Inspections of randomly selected screens verified the existence of these checks.
**Inspectorate-level software:** A “three-tiered software architecture was chosen by the software developer. As its name implies, this architecture segments the system into three primary tiers. The first tier is for user interface (or presentation), the middle tier is used to encapsulate business rule logic and the third tier is for data storage.

The RNIVTS chose an all Microsoft solution for implementing this architecture. The database tier is implemented using MS SQL Server, the business logic layer is implemented using Microsoft Transaction Server, and the user interface layer is implemented with Visual Basic and Microsoft embedding technology for generating reports using MS Office applications such as Word and Excel.

**Database Model:** Formal data modeling techniques are being used. The applications of these techniques has resulted in a “normalized” database. Such normalization reduces the redundancy of data, ensures that data is accessible, and ensures that meaningful relationships exists among all database elements so that advanced and ad-hoc queries can be performed.

The logical design for the database was created and maintained using a software tool from LogicWorks. The primary elements of any relational database design are a description of data attributes, a collection of those attributes into logical groupings called “tables,” and a definition of relationships among these tables. All of these features are represented in the LogicWorks tool. The tool automatically generates the physical database schema for a number of database implementations including Oracle and SQL Server. The generated schema includes features that help to ensure the integrity of the data based on the defined relationships.

**Customization:** The software as presently configured provides no way for the Inspectorates to customize according to their needs or to integrate locally developed modules. During the initial pilot phase of deployment, the software was distributed with a fully open database allowing direct access to the underlying tables and stored procedure definitions. During operational use, the plan is to implement a “run-time” system that eliminates direct access to the data structures. This will make database level integration impossible.

**RNIVTS Management of Software Development Process:** There is no single documented plan for national deployment of the TAMP software.

**Methodology and Standards:** There does not seem to be a formal development methodology in use at the RNIVTS. The development methodology in use relies heavily on individual knowledge (as opposed to institutional knowledge) of the required steps. For example, there is a lack of design and development documentation with the increase in the risk that systems development will fail to meet user needs.

**Change Management Process:** The RNIVTS did not appear have a means for managing changes to its software. Change suggestions were received at the RNIVTS by phone, e-mail, or hard copy from a multitude of end-users, system-managers, or local test officials. Suggestions for changes were not individually tracked. The originators of the change suggestions had no formal ability to determine the status of their suggestions. The lack of change consolidation by the originating
organization unnecessarily increased the volume of changes submitted to the RNIVTS. The ability to associate a particular change with a particular software release is in doubt.

**Test Process:** A formal and comprehensive testing program did not appear to exist at the RNIVTS. The amount of time spent testing the system at the pilot sites has been insignificant and has proceeded with very little formal guidance. The ability to test at the pilot sites is limited by a lack of data. There has been no performance testing with a fully loaded database. There seemed to be no detailed test schedule.

**System Maintenance:** Detail Requirements Documents (RD) and Design Documents (DD) were not produced thus diminishing the ability of the STS to provide long-term maintenance for the TAMP software. There is no formal way to verify that requirements have been analyzed and implemented (i.e. no traceability).

**Project Management:** The RNIVTS was unable to produce a current or updated schedule reflecting the overall status of the project. This deprives the RNIVTS and the STS of a major tool for understanding and managing the TAMP effort and the absence of this tool may have contributed to schedule slippage. An informal “internal schedule” was created and provided during the review visit. That schedule is attached as Appendix 15.

**System Requirements:** The STS together with the RNIVTS developed and approved top level requirements. End users had input neither into the top-level requirements nor into the detailed requirements derived therefrom. The RNIVTS did not apply enough staff resources to do a thorough analysis of requirements. System Requirements

**Technical Architecture Document:** There does not seem to be a Technical Architecture document that supports wider deployment of the TAMP. Consequently, important architectural decisions, such as data communication among sites, have not been identified and addressed.

**b. Issues**

**Systems usability:** Users of the current system are accustomed to using only the keyboard for screen navigation and data input. They said that the introduction of the mouse requires extra time to move their hand between the mouse and the keyboard. Because of the novelty of the windows/mouse environment, tasks may not be efficiently and accurately completed. The reliance on expertise of inspectors makes the data entry position more difficult to transform into a clerical task staffed by lower skilled personnel as the STS moves to more functional organizational structures.

Modern software development tools provide a wealth of capabilities for creating impressive graphically-based features. Sometimes these features make it easy to inadvertently obscure the fundamental nature of the task at hand. In the case of TAMP, many of the tasks to be performed are based on the simple entry of data. Typically when entering data the clerk views the data source while keying the data using a keyboard or keypad. Breaking the visual connection with the data source in
order to view the computer screen or to position the mouse wastes valuable time. Often times, a simple audible alert is more useful than an informational dialog on the computer screen.

**Systems performance:** It seemed that some tasks took longer than necessary to complete due to poor system response time. This performance will potentially be much worse with a fully loaded database, causing diminished user acceptance. Moreover, this would indicate a potentially serious limitation on systems expansion.

It was not possible with a cursory inspection to determine the source of the performance problems. It is possible that the problem is not with the system itself, but rather with the user’s interaction with the system. If this is the case, user training should help. Potential system performance problem sources are: client hardware configuration (specifically memory size and allocation), network bottlenecks, or server performance (specifically database performance).

**Data validation and integrity:** The choice of a modern relational database allowed the RNIVTS to take advantage of integrity checking features built into the system. Other advanced features such as database triggers and stored procedures were used as an aid to ensure data integrity. The use of a relational database resulted in improvement in the quality of data, reduction in redundancy of data and an overall increase in the ease of maintaining the system, as well as increasing the ability to share data with external systems.

However, aside from the standard relational database checks, from a tax administration perspective, no subject-matter validation and integrity checks were built into the system.

**Inspectorate-level software:** The primary advantage of this architecture is the ability to isolate each segment and distribute it to different machines and different geographic locations. By isolating each segment the ability is gained to modify one segment without affecting the other two. For example, the user interface area is the subject of rapidly changing technology. The current FoxPro system delivers the user interface through a character-based screen using MS DOS. With the TAMP software the user interface is delivered using the graphics capabilities of MS Windows 95. In the future, however the user interface may be delivered through a web browser such as Netscape, or through some other as yet undeveloped technology. By isolating the user interface, that part of the system can be changed in isolation without adversely impacting the other parts of the system. This reduces costs and increases the flexibility to incorporate new technologies. Additionally, each segment can be distributed to multiple machines. This is the basis of the client-server model. Such distribution primarily affects the performance and scalability of the system. A system is inherently more scalable if it can be spread across a number of systems rather than run on a single system.

The advantage of this approach is that integration across the tiers can be assumed and problems, when they do occur, will have a single vendor focal point for resolution. The disadvantage is that the ability to switch implementation technology in any of the tiers is greatly reduced or even eliminated. For example, in the user interface segment, the presentation of the data is tightly bound with the business logic layer. Switching to a different user interface that doesn’t support that specific Microsoft-proprietary binding will be difficult, if not impossible.
**Database model:** The database design may be more complicated than is necessary. The physical database schema for TAMP contains approximately 500 tables, of which roughly two-thirds are “look up” tables. Lookup tables typically contain lists of static data or parameters and are not directly related to the database design. The remaining one-third, or approximately 160 tables constitute the core of the database. This appears at first glance to be an excessively large number of tables for a business application. It should be noted that the number of tables in a database is not necessarily related to the number of attributes.

The separation of the database design from the implementation means that the database can be ported to any number of relational database implementations (SQL Server, Oracle, Sybase, etc.)

The large number of tables present, however, implies a greater amount of work that the database management system needs to do to preserve the integrity of the relationships among the table data. More often than not, database performance problems are a result of the design of the database. The performance of this database may be adversely affected by the large number of tables.

**Customization:** This issue is important to Inspectorates because they have developed extensions to the current system that contain important functionality not found in the TAMP system. Without the ability to levy requirements on the TAMP developers or the STS, and without the ability to extend, the TAMP software, Inspectorates may wish to reject the new software.

A decision needs to be made as to whether the TAMP software will represent a single stand-alone system for Federal tax administration, or whether it will be an integrated system that allows regional and local tax systems to be incorporated. If the latter is decided, an Application Programmer’s Interface (API) needs to be provided to allow for such integration. In any case, the decision needs to be communicated to the TTIs so they can proceed accordingly.

**RNIVTS Management of Software Development Process:** Until an implementation plan is developed and coordinated with the affected parties, the TAMP software cannot be rolled out in an effective and cost-efficient manner beyond the current pilot locations. Many of the findings in this report detail information that should be included in such a plan. However, much additional information is needed. For example, a determination of which sites are to receive the TAMP software needs to be made. A schedule needs to be completed that includes all the major elements of deployment: facilities preparation, hardware acquisition and delivery, system administrator training, end-user training, software installation, data conversion, and system cut over. It is unrealistic to believe that an effective deployment can occur without such a plan.

**Methodology and Standards:** The lack of a formal methodology resulted in important defects and oversights in the current system. For example, important steps such as validation of requirements by users and data conversion were not included in the process.

Moreover, the lack of discipline imposed by a formal methodology meant that even steps that were performed were not adequately documented. The formal development methodology breaks the development process into major phases and further reduces each phase into a sequence of tasks, each
of which results in a deliverable of some sort. The content of each deliverable is clearly spelled out by
the methodology.

Following a consistent methodology will allow a software development organization to improve
over time by minimizing the effort involved in how to develop software and focusing instead on what to
develop. The phases and tasks defined by a methodology are key inputs into the Project Management
process.

**Change Management Process:** The lack of a single focal point for incoming change
suggestions limits the ability of the RNIVTS to consolidate and analyze change suggestions.
Change management is a formal process by which improvements to the system are solicited, reviewed,
disposed of, prioritized, scheduled, implemented, and released. Establishment of a change management
process allows the owners of the system to control the overall configuration, evolution, and cost of the
system and ensure that the changes that are made are actually required, are cost-effective, and won’t
affect the system in unintended ways. Commercial software exists to help implement every step the
process. Often times such software is integrated into the source code control system to ensure that only
approved changes are implemented.

**Test process:** Testing coverage may not be complete due to the lack of a comprehensive test
plan. It is likely that errors that would have been uncovered during a test phase will remain in the system
and be discovered only during an operational phase. The cost of correcting errors is high due to
operational impacts and the expense associated with fielding new software to every deployed site.

The testing strategy at some TTIs has been to spread testing over a large number of inspectors
each testing a small amount of time each day (1.5 hours). The reasoning behind this strategy is that it
limits the disruption to normal operations. However, it also makes for ineffective tests. Especially since
many of the users had no training in the TAMP software. A true operational test requires that trained
users dedicate themselves full time to testing the TAMP system with live data as though it were their
only system.

**System Maintenance:** Reviews of Requirements documents and Detailed Design documents
by system owners (defined as the STS in Moscow) and end-users (defined as TTI personnel), did not
occur because those documents were not in existence, as a result there were more end-user defects
than would have ordinarily occurred if review procedures had existed and been followed.

Continuing maintenance of the RNIVTS-developed system is dependent upon its original
developers. Should another organization be contracted to provide maintenance or should the current
developers leave their organization, new maintenance personnel will need to study the system to infer
the design. This loss of productivity can be averted by proper maintenance planning and good system
documentation. In this regard, it should be noted that there is CASE information available for
maintenance of software. Additionally, business rules are maintained on Microsoft Transaction Server
and in SQL Server “stored procedures” which could act as a form of system documentation.
**Project Management:** The absence of a current schedule deprives the RNIVTS and the STS of a major tool for understanding and managing the TAMP effort and its absence may have contributed to schedule slippage.

Project Management is a term used to collectively denote managerial tools and techniques that are used to help a project achieve its objectives. Project management tools can help to identify, staff, schedule, and track required tasks. By identifying dependencies among these tasks, they can be sequenced in such a manner that the project is completed in the shortest possible period of time. When creating such a sequence of tasks a so-called “critical path” is established. Schedule slippage of tasks along this critical path result in one-for-one schedule slippage for the project. Understanding the critical path helps in the management of risk.

Several software tools ranging from simple to sophisticated are available to aid in project management. These software tools excel at generating schedules based on a plan and resource parameters. Progress against the schedule can be tracked by entering into the tool data reflecting actual resources expended. The schedule progress is typically depicted in a graphic format. Over time, the use of these tools will create a history that can be used to refine resource estimates for future tasks.

The use of these tools can answer questions such as the following:

- Is the project on schedule?
- When will the project be complete?
- What will be the impact of adding or subtracting resources to the effort?
- What resources are underused or are over-committed?
- Given current resources, when will a new project be launched?
- Where were the estimates inaccurate?
- How can more accurate estimates be made on future development efforts

**System Requirements:** In the past, the inability of the STS to field software systems that are responsive to the needs of end users has created a vacuum that has resulted in the creation of multiple disparate systems at the STI and TTI levels. While the initiative of these organizations is commendable, the collective uncoordinated efforts result in a great waste of resources and an impediment to the effective fielding of future systems. Unless end-user requirements are addressed, new and disparate systems will continue to proliferate and the conditions described above will continue.

While the owners of the system (the STS) have a primary responsibility to specify high level requirements for the system such that overall organizational goals are met, the low-level requirements should be specified by end-user representatives working together with system developers. By working together the users and developers can specify and implement a system that is both cost-effective to develop and meets the needs of the end users. This approach increases the chances of end-user acceptance and reduces the volume of rework required.

Only three members out of the 36 member RNIVTS development staff are called analysts. The role of an analyst is typically to understand the necessary tasks required to be performed by a user and to translate such tasks into low-level requirements and program descriptions. Such requirements and
descriptions should accomplish the required tasks while making optimal use of the computer as an aid in
task completion. Other analytical tasks involve partitioning the work into logical units that provide loose
coupling of system components while providing maximum opportunity for software reuse. The lack of
analysis is reflected in the apparent tendency to implement the current business processes as-is.

Technical Architecture Document: A technical architecture document describes, among
other things, all of the hardware and software elements that comprise the system. The document
describes various configurations of these elements designed to meet the needs specific different
organizational entities (STS, STI, TTI, Large, Small, etc.). Combining these configurations along with
vendor supplied and other cost data will result in a cost model that can be used to estimate the costs of
the system. Without such a document, the STS will not be able to determine capital investment costs in
support of wider deployment. It is possible, however, that this work will be performed by the
contractor hired by the STS to design the Federation-wide systems architecture. See Appendix 12 for a
more detailed discussion of a Technical Architecture Document development.

c. Recommendations

Systems usability: To address the mouse problem, most GUI standards call for keyboard
equivalents for all mouse commands. Many of these standards are automatically included in Windows
95. Where they are not automatic, the standards need to be explicitly programmed by the developers.
In all cases, the end user needs to be informed of the availability of these features through user
documentation and training.

Systems performance: User interaction with the system should be studied and additional
training provided to all systems testers to ensure that the performance problems are resolved. In the
medium term the client hardware configuration (specifically memory size and allocation), the network
bottlenecks, and server performance (specifically database performance) should be reviewed to
determine if the performance can be improved.

Data Validation and Integrity: When the current RNIVTS-developed software is redesigned
to have the computer take over many of the repetitive clerical functions, subject-matter validation and
integrity checks will have to be built into the system in addition to the standard database checks.

Database model: The database design should be simplified and the number of tables reduced
drastically in order to improve database performance.

Customization: As long as the STS collects taxes for all levels of Government, TAMP
software must become an integrated system that allows regional and local tax systems to be
incorporated into it and an Application Programmer’s Interface (API) needs to be provided to allow for
such integration. The decision needs to be communicated to the TTIs so they can proceed accordingly.

Test process: Users should be trained in the use of the TAMP software and a team should be
established and dedicated on a full time basis to testing the TAMP system with live data as though it
were their only system.
Methodology and Standards: While much time is often spent debating the strengths and weaknesses of one methodology compared to another, the use of almost any methodology is better than no methodology at all, so long as it provides a consistent frame of reference, repeatable development steps, and a consistent language for describing activity.

Impediments to Deployment of TAMP Software

a. Findings

There are a number of risks associated with the immediate deployment of the TAMP software:

(1) Documentation does not exist that outlines the specific procedures required to operate the system. These procedures should include, but should not be limited to: system startup, system shutdown, accounts administration, performance tuning, troubleshooting, problem resolution, system backup, and system recovery.

(2) Facilities requirements have not been determined and documented. Computer systems impose their own facilities requirements. Among the more obvious of these are space and electrical requirements. Other requirements may include ambient temperature ranges, floor loading ratings, physical security features, off-site tape storage facilities, and the existence of electrical conduit.

(3) The great majority of users did not feel that the TAMP system delivered significant benefits above and beyond the current system. Many of the users felt that the TAMP system would require extra work in excess of the benefits received.

(4) No cost model exists with which to estimate the cost of deployment to any specific Inspectorate.

(5) The TAMP software imposes much stricter data consistency rules for the database than does the current system. As a simple example, the new database requires each record to have a unique identifier (A TIN, for example). The current database imposes no such requirement so it is possible that two records share the same identifier. When this is the case, a data conversion error will occur. Each such error needs to be manually analyzed to determine an appropriate resolution. In many cases, the situation is further complicated since Inspectorates have modified the database structure to support local application extensions.

(6) While the Microsoft implementation of the three-tier architecture may be suitable for Inspectorate-level operations, it may not scale well for STI or STS level operations. The scaling risks are both in the software itself which was arguably not designed for large volume high-reliability operations, and in the hardware platforms on which it runs, which, until recently, were limited to relatively low end servers.
According to the RNIVTS, several pieces of functionality agreed upon with the STS have not been completed. The most significant piece is “Criteria for Field Audits.” There is currently no schedule for completing the missing functionality.

The STIs have their own software that is (somewhat) compatible with the current FoxPro-based software. Protocols are said to exist that govern the exchange of information between STIs and TTIs. It was not clear whether those protocols have actually been implemented in the TAMP software. There are not likely to have been tested in conjunction with the regional software, moreover, the role of the STI Data Processing Units in the areas of data backup and data sharing has not been defined, and

The TTIs had not invested significant time in testing the TAMP software. True operational testing has been hampered by a lack of converted live data. The testing strategy currently employed spreads testing over a large number of inspectors each testing a small period of time each day (1.5 hours). The reasoning behind this strategy is that it limits the disruption to normal operations. However, it also makes for ineffective tests.

b. Issues

(1) The support burden that is an inevitable consequence of the lack of operating system documentation will cause the software vendor to expend significant and unnecessary resources on ad-hoc support. More importantly, the lack of such procedures will mean that many necessary operations (e.g. system backup) may be performed improperly or, worse, not at all. Deployment of the system can proceed only at the risk of total data loss.

(2) Deployment of the TAMP without a determination of facilities requirements can proceed only at the risk that the target inspectorates will not be prepared to receive and operate the system. For example, if an off-site tape storage facility is not available, the inspectorate may not be able to recover taxpayer data in the event of a disaster such as a catastrophic flood, fire, or earthquake, which would result in a loss of tax revenue.

(3) Users will not engage in a serious testing effort if they do not perceive value to the system. Furthermore, they will look for reasons to delay or eliminate acceptance of the system. It is not clear why users perceive that the new system does not provide significant benefits beyond those already available in the current system. One possibility is that the perception results from inadequate training. It is also possible that too few hours have been spent actually using the system with live data to make a valid assessment. The other possibility is that the TAMP system does not, in fact, add any value over the current system from the user’s point of view. Many findings point out significant advantages of the TAMP software from a systems point of view. Yet these findings are not visible to the end user. It is important that the overall motivation and benefits of the system be communicated to end users.
(4) The overall cost of deployment cannot be calculated without knowing the cost per Inspectorate. Without knowing the overall cost of deployment, a meaningful budget cannot be created and financing arrangements cannot be credibly pursued. This puts entire TAMP deployment at risk. At the very least, the cost model needs to take into account fixed costs associated with each installation (e.g. server(s) hardware, LAN backbone, server software, operator training, facilities upgrades) and marginal costs associated with adding another user to the system (e.g. LAN drop costs, PC, software, and user training).

(5) It is not possible to write a generic conversion program that accounts for each of the modified structures at each of the inspectorates. Therefore, a custom conversion program may need to be written for each inspectorate which will be exceedingly costly. Consideration may have to be given to the need for conversion of all data bases. Without a standardized organizational structure and processes, the temptation to modify the TAMP software by creating non-standard extensions will remain, possibly leading to future data conversion problems.

(6) Evolution of the system to regional and/or national operations will cause uncertain levels of performance degradation. Incorporation of major new subsystems such as the Personal Income Tax (PIT) may also cause significant performance degradation. Costs may be increased due to decreased competition among high-end MS NT server vendors. If deployment occurs before the required functionality (criteria for field audits) is developed, the inspectorates may not be able to effectively use the new software. On the other hand, future costs may have to be incurred when the functionality becomes available and deployed systems need to be upgraded.

(7) Regional level software may be rendered unusable after the TAMP system is deployed. Previously automated Regional functions may have to be performed manually or not at all. Additionally, the role of the STI computer centers in support of their TTI’s is not clear, and

(8) Deployment of an untested or under-tested system carries substantial risk of exposing large numbers of end users to undiscovered defects. Once discovered, the impact of these defects would be magnified across all of the deployed systems and their users. The cost of fixing the defects in a deployed system are substantially higher than fixing them in a test environment.

c. Recommendations

(1) Documentation should be developed that provides specific procedures that should be followed to operate the TAMP system. These procedures should include: system startup, system shutdown, accounts administration, performance tuning, trouble shooting, troubleshooting, problem resolution, system backup, and system recovery.
(2) The STS should develop a set of guidelines for the STIs and TTIs on facilities requirements for the TAMP computer systems, i.e., space and electrical requirements, temperature ranges, floor loading ratings, physical security features and off-side data storage facilities requirements.

(3) The STS should establish a cost model based on a typical workload as a guide to the TTIs on hardware and software requirements.

Expansion of the Pilot Project

a. Findings

The TAMP software is almost complete except for the audit selection module. The software, as currently structured for TTI-level operations, is scheduled for operational roll-out in July 1999. The current plans are to continue the pilot test of the modernization effort with a centralized processing operation in the Volgograd Oblast and to include processing of personal income tax returns in the modernization effort. The STS proposes to create a combined Steering and Implementation Committee to oversee the next phase of modernization, however, there is no information available on how the combined committee is to operate or what are the goals and objectives of modernization.

b. Issues

There are no measurable objectives that define what the STS desires to accomplish with modernization, beyond producing software and migrating to updated hardware platforms for operating the new tax software. There is no Strategic Plan for the purpose of defining the goals of the organization in terms of measurable objectives or how they are to be achieved. It is not clear what will be the goal of the Nizhny Novgorod pilot test and its relationship with the test of the centralized processing in the Volgograd Oblast. It is important that the STS create an organizational structure, assemble a team to establish the goals of the STS and write measurable objectives to deal with the many issues of modernization.

To deal with the issues of modernization the following organizational arrangements need to be considered:

Creating a steering committee to oversee development of computer system:

An essential component of the implementation effort is a computerization steering committee whose task should be to initiate, guide and review and computerization projects within the STS. The steering committee should be composed of senior managers from the various areas of the administration that are likely to be affected by automation. The senior data processing manager and the representatives of the finance, accounting and personnel departments should also sit on the committee. The Chairman of the Steering Committee should be the Head of the STS or at a minimum, his First Deputy.
Establishing an implementation team:

After a steering committee is created and can provide overall policy guidance, an implementation team under the senior data processing manager needs to be created. This team should be given the responsibility to design the computer system, procure the hardware, purchase or develop the software and establish the data processing organization. Representatives of primary users, i.e., taxpayer services, collection and audit need to be included to ensure that systems designed are responsive to the needs of these activities. In addition, organizational changes resulting from computerization will have an impact on duties of staff, their location and their training needs, therefore staff from the human resources organization and the training office.

One of the tasks of the implementation team is to build a software development organization and institutionalize sound development practices. Using consistent software development processes can help to ensure consistent success over the long term. It can also improve the quality of software products and support, even if the software products at the STS are already of a high quality. A good development process will allow developers to focus on what is developed rather than how it is developed. One implication of this is that personnel could be added, or, in fact, the whole development organization could be replaced, at any point in the development cycle and be immediately effective. This will enhance the ability of the implementation team to deliver value to the STS customer.

The implementation team will also need to consider the practical aspects of implementing modernization and take the appropriate actions. Some of these actions have already been initiated, others have not been started, however they are restated here for convenience:

Development of a self-assessment system:

As mentioned in the previous chapter the development of a self-assessment system and the development of a computer system are complementary. Under a self-assessment system, taxpayers are able to complete their declarations, calculate their tax liabilities, and make the tax payment at the time required. Computers (after capture of data or through EDI or other forms of electronic filing) are then used to perform corresponding routine functions, like verifying TINs and other credibility checks, verifying arithmetic calculations, maintaining individual accounts, matching payments with declarations, and identifying noncompliance.

Self-assessment of tax liabilities allows the tax administration to devote more resources to facilitation of procedures and to detection of noncompliance and fraud. Self-assessment also permits, together with extension of computerization, to cope with the additional workload resulting from a large number of taxpayers.
Design of simplified forms, compatible with computer systems:

As also pointed out in the two previous chapters, dealing with the tax administration should be simple from the taxpayer’s point of view. Tax forms and procedures should be as simple as possible to encourage compliance. To help simplify tax administration, the information required on the tax forms should be kept to a minimum and be readily available from the taxpayers’ books and records.

Simplification of procedures and documentation:

One of the major tasks of preparing for automation is the simplification of existing manual systems, procedures and documents. When introducing computerization or upgrading existing systems, it is important to review first current manual systems, procedures and documents. In most cases, the review will lead to modifications in the legislation, moving of staff and change of work habits. If computer systems are superimposed on badly organized or ill conceived procedures, they will prove useless and probably exacerbate existing problems.

Assignment of unique & permanent taxpayer identification numbers:

The taxpayer identification number (TIN) is a key element of computerization. It is one of the prime prerequisites to the successful implementation of a computerized tax administration. It gives access to the taxpayer records where all relevant information (such as type of business, turnover, import and export activities, domiciled tax office, payments) is stored in the data base. A TIN system should be established with two main objectives: first, to facilitate computer applications, such as detecting stop-filers and delinquent accounts; and second, to help cross-check information on taxpayer compliance, for example by cross-checking information between customs and tax departments.

Among key requirements of a TIN is that it should be a unique number for each taxpayer and should replace all previous numbering systems, if any; and the tax administration should take the lead in coordinating action to develop the structure of a universal, permanent TIN with other interested departments, such as Customs, Treasury, Trade, Social Security, and Central Statistics. TINs should be straightforward sequential numbers which can be easily generated by a computer or even assigned manually.7 They should be allocated progressively, starting with VAT taxpayers and importers.

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7To produce reliable input, a TIN should be self-checking, that is, it should have a check digit calculated as a combination of the digits forming the sequential part of the TIN.
Reform of organizational structures:

The typical TTI is still using manual processes for accounting for revenue and for compliance. It generally depends on one-on-one contacts by tax officers with taxpayers. Typically, these TTIs are organized along type of tax or type of taxpayer lines, with taxpayers assigned to deal with only with specific tax officers who provide tax advice, assistance with filing of tax returns and reviewing them in the presence of taxpayers and making the assessments based on the review of the returns and the resulting negotiations. Often, after the manual processes are completed, computers are used to enter the data from taxpayer returns (duplicating the work of the tax officers) for the primary purpose of producing management information reports.

The introduction of computers can eliminate the bulk of the repetitive clerical tasks from the tax officers and presents an opportunity to the tax department to eliminate the close linkage between the tax officers and the taxpayers.

The computerization of tax administration functions, if it is to be economically justifiable, requires the organizational structure to be reformed. The STS needs to design their computer systems in a manner that will make the data entry operation the first step in processing of tax returns and verification of the tax computations used by the taxpayers. Detection of errors, under-payments of tax, failure to file, and suspicion of under-reporting are functions that can be performed by the computer. These functions, which are, or should be exceptions, can then be flagged for review and action by tax officers.

In order to take advantage of the work of the computer, it is imperative that the organizational structure be changed: the data entry operation requires that a data processing unit be established either in each TTI or in some centralized data processing unit, and made responsible for the processing of returns, assessment and adjustment documents, correction of errors, and maintaining a computerized revenue accounting system. To make use of the output from the computer, a unit responsible for collection of taxes and insuring that taxpayers who failed to file returns do so has to be established and to audit returns which the computer has flagged needs the creation of an audit unit. To support this effort, a unit devoted to providing taxpayer information needs to be created. Under this scenario, management has to take a more active role in work distribution and assignment. No longer can management assign a group of taxpayers to a tax officer and leave the situation at that. Now management will have to take the output from the computer and ensure that it is assigned to tax officers and auditors, as their workload permit. Often it should be done in a random fashion to ensure that tax officers and auditors are rotated between taxpayers.

The implementation team or one of its subsidiary work-groups must give attention to the development of a strategic plan for defining the goals of the STS in terms of measurable objectives. It is important that the STS consider this task as a priority item. The Strategic Plan is an indispensable document for communicating to internal staff as well as external organizations (lenders, other government agencies, etc.) the direction and priorities of the organization.
The STS IT Staff should use the Strategic Plan to assist the STS in documenting the current process and coordinate reengineered processes with methodological departments at the STS. The reengineered document should be referred to as the Concepts of Operation (for new systems).

Note: The Strategic Plan is the first of four required documents which complete a vision of the future. The others being: The Concepts of Operation, the Top-Level Systems Requirements Document, and the Integrated Systems Architectures. These documents are covered elsewhere in this paper.

c. **Recommendations**

**Short term:**

*Complete the Software Development*

The TAMP software is almost complete. The only significant item outstanding is the “Audit Selection Criteria” module. Unfortunately, to be effective, this module requires the implementation of heuristic rules that the RNIVTS staff is not in a position to know. These rules can only be discovered through in-depth interviews with the most experienced and successful of auditors. Therefore, this item will take a significant amount of time to complete.

The STS should revisit this requirement and deploy the TAMP software without it. This capability can be added as part of a scheduled upgrade once the software is deployed.

Create a formal change management system for reporting, consolidating, analyzing, approving, and controlling changes caused by defects reported by testers and users of the software.

*Create and Implement a Data Conversion Strategy*

Develop a strategy to address the data conversion problem. Segregate essential from non-essential data. Further isolate core data provided under the current FoxPro-based system. Convert only essential data (e.g. registration data) and run the TAMP system beginning with a mostly empty database. Enter new data as required. Concurrently run the existing software in a read-only mode until such time as the data contained therein is no longer referenced.
**Test Completed Software in Operational Mode**

Once a conversion strategy has been defined and implemented, true operational mode testing can take place. For this test to be meaningful, a full-time dedicated staff sufficient to cover all of the provided functionality must be applied to the test effort. Furthermore, the officials testing the new system should use live data as they would during the performance of their normal jobs. The results from these tests should be communicated in a formal manner to the RNIVTS for resolution of any problems.

**Create a Deployment Plan and Schedule**

This step is absolutely essential. Effective system deployment will not happen without a plan and a schedule. The plan should identify every milestone that needs to be completed for the TAMP software to be deployed. The schedule should commit actual resources to the plan and generate dates for each of the milestones. The plan should, at minimum address the following:

**Sites:** Which sites will receive the software. Presumably, the sites that can benefit most will fit some sort of profile, such as the IMF guidelines for LTIs. The profile should be applied to all the potential TTIs and a prioritized list for receiving TAMP hardware and software should be developed.

**Facilities:** Facility requirements as described in the findings should be developed. Those requirements should be compared against the facilities actually available at each identified site and discrepancies documented along with cost estimates to remedy the discrepancies.

**Budget:** A comprehensive budget needs to be developed and funding secured based on a cost model (such as is described in the findings) applied against each of the sites on the list. The budget should also include expenses associated with facilities improvements, and any deployment-related overhead (travel, postal, production of training material, administrative, etc.)

**Installation:** The hardware and software that needs to be installed should be listed. Ideally, the installation can be accomplished using local systems staff. However, if the installation manuals are not effective or if the local systems staff is not qualified, the installations may need to be performed by the RNIVTS. This might require that the RNIVTS hire extra staff.

**Data Conversion:** The strategy determined as a result of the earlier recommendations needs to be implemented as part of the deployment plan.

**Training:** The strategy determined as a result of the earlier recommendations needs to be implemented as part of the deployment plan.

**Cut-over:** Cut-over dates for each Inspectorate need to be established. These dates should be staggered in such a manner that the RNIVTS staff will not be overly burdened.
**Operational Support:** A support function either at the RNIVTS or the STS needs to be established to provide on-going operations assistance via telephone or e-mail to all TTIs that are installing the TAMP software and hardware.

**Medium-Term:**

*Establish a process to control STS system development*

A good development environment contains the following elements:

Methodology: An ordered sequence of steps that one takes to produce software.

Software Development Process: A definition of the software development environment.

Configuration Management Process: A process to control changes to system components.

Test and Evaluation Master Plan: Procedures for unit, integration, and system level testing

Maintenance Support Process: Steps to be taken to maintain the software system.

Software Quality Program Process: Rules for ensuring that all required steps are followed.

Implementation Process: Rules for transferring the system from the developer to the user.

Transition Plan: Supports the management of the project’s schedule and budget.

Each of these elements is described in detail in the sections that follow. While the terminology used in the following sections is somewhat dependent on the methodology chosen, the concepts are generally the same for all methodologies. Further details are provided in Appendices 8, 9 and 10.

**Methodology:**

A formal methodology should be selected or otherwise created and used by the STS IT Staff and The Software Development Contractor. The methodology should govern the production of detailed requirements, design, and code documentation for each business system developed. The chosen methodology must provide procedures that span the entire life of the product through development and maintenance, otherwise known as a “life cycle.” The STS should incorporate this life cycle into its software and systems development process in order to assure consistent outcomes. The following web pages provide additional guidance:

http://www.sei.cmu.edu/engineering/engineering.html, and

**Software / System Development Process (SDP):**
A Software Development Process provides a complete start to finish lifecycle, procedures, and management for developing software systems. The STS should use the SDP immediately upon completion. It should be binding on the software development contractor, and all system and software developers. STS, Information Systems Management, should enforce its provisions. STS IT Staff should document a SDP before embarking on a subsequent development effort. The STS should obtain expertise familiar with SEI / CMM, ISO and similar development standards and should create an SDP that outlines the following:

- A commercially available ‘Life Cycle’ method.

- A definition of the development organization, and

- A Work Breakdown Structure (WBS) to be included in contracts provided to the software development contractor. A WBS is a list of products needed to complete and communicate the design to interested parties. The WBS also allows for a comprehensive schedule of development to be created and managed.

Configuration Management Process (CMP):

The Configuration Management (CM) process is one of the most important features of any life cycle development effort. The CMP manages changes to a system configuration (hardware, software, and manual systems). The CM process contains an audit process that ensures that the configuration is delivered in the approved and agreed upon specification. The CMP also outlines documentation library procedures, and tracks versions of system components. A well run CM process allows management to understand the impact of changes on the Tax Administration and systems used to support administration activities.

A CMP should be developed as soon as possible and documents not currently completed, be created, agreed upon, and become part of the CM Baseline system, i.e., a named, agreed upon, signed, and controlled version of a document. Furthermore, it is recommended that the STS obtain specialized system development guidance for development of standards and processes to guide any future development activity. Since the STS will need to address many changes, it is essential the impact of changes is available to STS and the CM Function should be staffed from the software development contractor and the STS staff responsible for CM.

The STS IT Staff should be responsible for producing a CMP and the software development contractor and all users should be governed by a baseline control system.

The STS IT staff should include a copy of the STS staff’s Configuration Management procedure inside bidding documents and request compliance with all STS CM procedures.

A documented CM process should contain:
(1) A process that receives and analyzes user sponsored change requests. The Analysis determines cost and how long it will take to incorporate a change into the software in use or under development. It also estimates the benefits of a proposed change.

(2) A listing of controlled documents (for change control purposes), such as a TLSRD or Detailed Requirements Document.

(3) A data administration and management process. Procedures for product configuration identification (standard naming convention for easy reference and tracing of requirements to design to code).

(4) Procedures for control of interfaces and sharing of data, program functions between projects and end-users.

**Test and Evaluation Master Plan /Process (TEMP):**

It is important to have a simple and effective testing process be documented in a Test and Evaluation Master Plan (TEMP). The TEMP manages and documents the following four levels of test and the testing process: (1) Code level Test—defined as testing accomplished against the design specification outlined in a design document (part of the Allocated System Baseline document). An example of this item is a single input screen or report item. (2) Project Level Testing -Integrated Application System Test, defined as testing which is accomplished against segmented systems requirements specifications for an entire business area such as Registration. (3) Integrated Enterprise System Testing, defined as testing accomplished against the Top-Level System Requirements. An example of this would be integrating and preparing an entire software system for Registration for rollout and ensuring it works when integrated into the operational environment. Last is (4) Site or Field Testing, defined as acceptance testing in the user’s work environment.

A TEMP should be created as soon as possible by the STS IT staff. A copy should be provided to the software development contractor to guide further testing of the current system, and to be used to test systems that result in changes to the Product Baseline.

The STS IT staff should refer the TEMP in contracts governing the development of software for the STS, STI’s, and TTI’s. The contractor should be required to prepare a Test Plan annex outlining the steps to be taken to test STS software. The contents of a TEMP are:

(1) A definition of each test in the production environment and responsibilities for each of the phases of the testing process.

(2) A definition of the Testing Organization and Responsible Persons (defining internal responsibility, and securing agreements with others such as TTI’s and STI’s).

(3) An outline of the testing procedure.
(4) A definition of the Defect Reporting Process and definition of documents to be created.

(5) A definition of the relationship between Testing process and Implementation.

(6) A definition of the relationship between Testing and Maintenance processes, (ensure the parties responsible for each function are clearly defined as to what products are required in the exchange and how formal operational control of the product is passed from the testing organization and the maintenance organization).

**Maintenance Process / Plan (MSP):**

The MSP outlines the process used by management to maintain project code and documentation once developed and in operation, or on the shelf.

Maintenance activities must be treated as a sub-project, where the documents and CASE diagrams are being changed to reflect adjustments presented to the IT organization. Therefore, the maintenance project is almost like a new TAMP project, except the maintenance project has the code and the benefit of standard development documentation.

The STS IT Staff should select an organization to maintain the software. The selected organization should develop a maintenance process. The process should be documented soon, since software is in the test phase. The organization should educate users and system managers on in-house procedures for reporting defects.

A Maintenance Management Procedure contains:

(1) A Maintenance Organization: Software Maintenance procedures which should specifically include: updating of project CASE diagrams, software requirements documents, design documents, testing of updated solution, interface to implementation teams or implementation process and version control.

(2) Product Review Policy that guides changes to documents under configuration control.

(3) Coordination / Integration Process which is a software build procedure for incorporating approved changes. It ensures that changes do not affect other systems in unintended ways.

(4) Software Delivery Process which details how software is delivered to the users, and

(5) A data administration process which contains rules governing changes to the database.

**Software Quality Program /Process (SQPP):**
STS staff should establish a Quality Management function with responsibility for ensuring proper review of life cycle documents. This function should prepare a SQPP document that embeds quality as core process. The STS staff should include document reviews in contract documents for software development. The review of documents and providing good comments in accordance with a sound well thought out process will greatly improve the quality of STS software.

The contents of the SQPP should include:

1. Life cycle product review procedure for each baseline document outlined in the WBS. The software quality process should establish and develop a procedure for processing comments and how they developers should respond to comments submitted.

2. The Quality Assurance Audit procedure in order to ensure comments and changes are being properly incorporated into critical baseline documents.

3. ISO 9000 series standards relating to information systems should be consulted or STS staff should receive training in quality management.

**Implementation Process / Plan (IPP) (S):**

Implementation is a lengthy process and requires a great deal of coordination for installation of a modern information system of the dimension needed here in Russia. Therefore it is essential that there be a written Implementation Plan, which discusses every aspect of the implementation process. It is important that the STS IT staff creates policies for this plan, and sends it to all affected STI or TTI offices when applicable.

**Transition Process (TP):**

The Transition Plan or process is a comprehensive document that covers the entire modernization process (systems, non-systems and organizational modernization). For any future systems development efforts leading to a nationwide rollout, HQ STS, under the supervision of the Steering Committee, must develop a Transition Plan and reporting process. A staff should be named to maintain the transition process and to report on progress.

There are thousands of decisions and different tasks that need to be accomplished when rolling out a new system. The Transition Plan is a time line that defines what is needed to take the STS from the current system to the system it has documented in its Strategic Plan. The Transition Plan should be constantly managed and updated. Failure to meet schedules in one area effects other activities. Higher costs in one project, will reduce the amount of resources which can be used on other projects. Therefore, schedule and resources must always be monitored.

There are three major elements to be manage in systems development: Budget, Schedule, and Requirements. The Transition Plan manages Budget and Schedule.
**Process Document**

The STS IT Staff should produce a ConOps that serves as a basis for overhauling the entire STS from the Headquarters to the TTI. The functional descriptions should be consistent with organization process descriptions approved by the STS Headquarters. The current or new organization process diagram should be sent to all STI’s as a standard operational regulation. The STS IT staff together with users should then re-engineer the current operational procedure to bring enhanced modern information systems to the STS. The re-engineered systems should become part of the Concepts of Operation and be used to develop the Top Level Systems Requirements Document.

The ConOps is an diagrammatic and textual description of the current operational system, and the reengineered system under consideration.

The ConOps allows a re-engineered system to be analyzed to determine whether organizational objectives outlined in the Strategic Plan are met. The current system serves as the system baseline which supports training and provides a platform for developing the reengineered system. Procedure for Construction of a Concept of Operation Document is described in Appendix 15.

The Strategic Plan and Concepts of Operation form the basis for the Top-Level Systems Requirements Document and the Integrated Systems Requirements Documents, described below. Once this set of documents are completed the Functional Baseline is completed and the formal systems development process can begin.

**Top-Level Systems Requirements Document (TLSRD)**

The STS IT Staff, together with a broad-based user committee should develop a TLSRD to provide a next generation replacement of the TAMP system that should be approved by the head of the STS. It is the last of three building blocks of system development, the other two being schedule and budget.

A requirements document is the outcome of a thorough analysis of all the processes performed by an organization—both manual and automated. The analysis results in statements that communicate specific features that must be present in the resulting system in order to achieve, through engineering, the goals and objectives of the organization.

This document should be in-line with a re-organized headquarters and field organizational structure and should be the sole source for high-level integrated system requirements.

The requirements stated in the TLSRD should be broken down by business area and directly traceable, in turn, to the re-engineered processes, the current processes, and the Strategic Plan. The TLSRD should be used by the contractors or internal STS developmental organization entities as the basis for further analysis.

TLSRD is a primary input document for the development of the Integrated Systems Architecture. It establishes sub-project boundaries, by allocating a requirements segment, or group of
related segments to a single analysis manager to be developed. The document that results from this segmentation is known as a Project Charter Document.

The TLSRD defines the test or acceptance criteria, that once achieved, shall satisfy the stated system requirement. The Requirements Document should become part of the Functional Baseline.

A description of how to construct a TLSRD can be found in Appendix 11.

**Integrated Systems Architecture (ISA) Document**

The IT Staff must have a system architecture which can trace physical systems components to requirements in the TLSRD before any national implementation of software is considered.

The ISA should be used to justify and control hardware systems procured for use nationwide. The TLSRD is a living document. When the law or processes change, the document should be updated by STS IT Staff and re-validated, (see Configuration Management) and those changes should propagate through to the ISA and lower level design documents.

The ISA is an union of tax office software requirements specifications together with the hardware needed to create a highly effective tax system. The ISA outlines the blueprint for system design and deployment and can be used to support acquisition and disbursement of World Bank Loan Funds.

**Develop an API for Integration with Other Systems (Federal, Regional, External)**

Integration of external systems into the three-tier model is most appropriately accomplished at the “business logic” layer. It is at this layer that meaningful business transactions are defined and that integrity and other transactional rules are enforced. For example, a transaction called “register taxpayer” may exist that validates the presence, consistency, and syntax all of the data provided, verifies that the taxpayer isn’t already registered, and, finally adds the data to all affected tables in the data model. If any part of the transaction fails, the database is left in its original state (except, perhaps, for an entry in audit log table indicating that the transaction was attempted).

Integration at this layer requires the development of an Application Programmer’s Interface (API). The API requires extensive work to document all required data structures, invocation formats, description of operations performed, and all resulting error conditions. Instead of creating an API, the temptation may exist to simply open the database to anyone who wants to use it. This appears to be the solution provided by the current system. The problem with this approach is that the database can quickly find itself in an unexpected and uncontrollable state.

The API should be robust enough to allow the integration of all the diverse systems—both current and yet to be developed—that will eventually need to integrate with the tax administration. The most current need is for integration with systems developed at the TTI level for the administration of
local taxes. Future needs might include integration with and among the banking system, the Ministry of Finance, Tax Police, and regional and national tax offices.

The use of “middle-ware” products are often used for the integration of diverse systems. CORBA, a middle-ware standard, is described in Appendix 13.
**Usability Engineering**

A usability engineer should be hired and/or the designers of the TAMP software should attend usability training. Usability engineering concepts should be actively applied in future releases of TAMP.

Lack of user acceptance is one of the primary reasons for the failure of computer systems. Usually when users reject systems it is for one reason—the system fails to meet their needs. Usability engineering is a discipline that applies a set of tools and techniques that aid in the understanding of tasks that users need to accomplish and how best to complete those tasks given the circumstances and abilities of a particular set of users. The results of a usability engineering analysis are key inputs into the design of the system. It is much easier and cheaper to build usability in at the design phase than it is to discover and fix usability problems in the test phase.

![Usability Engineering Diagram](image)

The diagram above illustrates the basic usability engineering process. In a typical usability analysis, the usability engineers begin by understanding the characteristics of the users—their education level, familiarity with computing systems, their age, general work habits, etc. Then the engineers observe the users in the performance of their current tasks. The engineers are careful to write down everything that is observed and heard. The engineers apply their expert knowledge to the findings and develop a preliminary design. They then tests key aspects or uncertain aspects of the design with a prototype. The prototype need not be fancy. In fact, many prototypes are entirely paper-based. The users are asked to accomplish a particular task with the prototype. If the prototype is paper-based, the users interact with the paper as though they were real screens, and the analysts play the role of the computer and switch or modify screens based on user interaction. Again, the analysts record every question that the users have, every pause in their thought process, every mistake made. These tests are repeated with a set of users selected for characteristics representative of the entire user base. Often times the sessions are videotaped for subsequent analysis. The results of analyzes are used to refine the design and the prototype. The iterative design cycle is repeated until it no longer produces useful results. All of this need not take a lot of time. Fortunately, the most valuable design considerations are discovered in the earliest iterations of the process. Sometimes designs based on usability analyzes are surprising to systems developers. For example, a graphical user interface is not always the most usable interface.

**Year 2000 Program**
The STS should name a Y2K project manager to accomplish a nationwide tax office Y2K survey. The survey should identify all technical equipment that makes use of either an embedded or Central Processing Unit (CPU) type processor, and to determine if such equipment could lead to a Year 2000 failure.

A Y2K sub-project to survey what equipment and Commercial Off-the-Shelf Software (COTS) is required to be used throughout the STS and should be conducted within the next few months. However, it needs centralized guidance and control and the project manager should develop procedures outlining actions to be taken to correct STS Y2K problems.

Many of the Y2K problems will reside in the Basic Input Output Systems (BIOS) sometimes permanently programmed into chips or as basic features of the operating system. Other problems will be with the operating system and application software.

The systems at risk of Y2K failures should be tested. For instance, FoxPro is used in Volgograd TTI’s. The version of FoxPro in use should be subjected to date testing. There may be a significant number of Intel 286 and 386 processors in use throughout the STS. The BIOS may require changing if these systems are to be used beyond 2000. A sample of these systems should be tested and the procedure for correcting the Y2K problems noted. The remedy should be provided to STS assets who, based on survey results, possess equipment in need of a Y2K repair.

Further information on the Y2K issues can be found on the Internet at the following sites:

www.y2k.gov and www.ftc.gov. Also, Appendix 14 carries a short discussion on this topic.

The numbers of systems corrected by region, validated against the survey results, should permit the Head of IT to determine the STS Y2K compliance.
The Data Processing Center

a. Findings

The STS has determined that the next step in the modernization effort should consist of a test of the feasibility of centralized processing of tax returns, payments and other data. To this end the STS plans to establish a separate Data Processing Center\(^8\) in the Volgograd Oblast and to pilot test this concept.

Functions allocated to the DPC would consist of:

- A Registration Data Entry Function;
- The Declaration Data Entry Function, (for Legal Entities to include payment data);
- Some Elements of Audit Appeals;
- An integrated data base accounting function (to include notice production);
- STI Management Information Systems (MIS);
- Forms Management;
- Archiving; and
- Personal Income Tax Data Capture.

Functions allocated to the pilot TTI would consist of all other tax office activities, specifically:

- Document Drop Box for transportation of documents to the DPC;
- Acceptance of Documents (Correspondence) from the taxpayer;
- Payment and document reconciliation;
- Almost all contact with the taxpayer over tax matters;
- Issue of tax statements;
- Taxpayer first level appeals;
- Customer Service functions such as (cash register activities, and alcohol sales matters); and
- TTI MIS functions.

b. Issues

The Federal STS very loosely supervises 89 regions which in turn supervise some 3,000 local tax offices. Of these offices, approximately 50 percent are small (staffed by no more than thirty employees) and are unlikely to be able to support a reasonable size data processing unit with all the appropriate supervision, processing controls and organizational disciplines. Clearly some form of centralization of data processing activities is warranted and the test of the Volgograd DPC concept is a proper step in that direction.

If successful, the DPC could become a model for the roll-out of a national computer system. The DPC concept may force the STS to take the appropriate steps to institute changes in the organizational structure of the TTIs to a functional alignment (including a self-assessment system) and creation of a professional data processing structure.

The changes instituted in the procedures and operations of the TTIs due to the creation of the DPC and the consolidation of functions may lead to efficiency gains that will allow the tax administration to reallocate staff to compliance initiatives (such as arrears management). The challenge will be to overcome difficulties with transportation, communications, the inefficiency of the postal system and introduction of changes required in the banking procedures. In addition, there will be additional costs, such as a sustained fixed cost increase in telecommunication, software development, and heavier computational equipment in achieving the gain.

For example the software will need to communicate with TTI’s, which will require exporting routines (that target a specific TTI) or creation of a transaction processing capability.

The DPC input systems will be receiving large amounts of input data and therefore may need an increase in computing resources such as processors, secondary stores, tape storage, and network capacity.

There may be the need for the DPC to migrate to another database. SQL Server is a powerful database product, however with increased need for throughput, and faster system response times, other products may be more suitable. The Software Development Contractor software and the CASE tools used to document the development are capable of generating the database on any platform. The business rules and code may not be easily migrated to new platforms, and thereby need to be studied.

c. Recommendations

The RNIVTS-developed software should be deployed in order to support a test of the Data Processing Center concept after the software as currently developed is made operational.

The STS should determine how to identify the TTI-level computing centers in order to direct processed taxpayer data to the proper TTI.

The STS should deploy RNIVTS software to the DPC as though it was being deployed to a TTI. The delay, while deployment decisions are made and engineering takes place to eliminate software not being used at the DPC, might introduce new errors.

The software should be field-tested on the intended platform. Once field-testing is completed, the ability to exchange data should be tested.

The DPC concept should be tested for one calendar year. During the testing period, TTI’s should be brought on-line incrementally to test system capacity.

The test of the DPC should be initiated with a Large Taxpayer TTI, if one is operational in the Volgograd STI.
Chapter IV - Training

Training in use of computers

a. Findings

Training staff: A dedicated training staff does not exist either at STS headquarters or at the pilot STI offices. Training is initially delivered by the RNIVTS development staff to both the Nizhny Novgorod and the Volgograd pilot TTIs that are testing (or are scheduled to test) the TAMP software.

Training materials: Training materials were not created as part of the TAMP program. It has been left to the STIs and TTIs to create their own training materials. Training materials do not exist for training local system administrators.

Training facilities: The availability of training facilities is extremely limited with respect to the number of staff that need to be trained and their dispersion throughout the Russian Federation. In the two STIs visited, training facilities consisted of one classroom each with a capacity of training about 12 students at a time.

b. Issues

Training staff: The authorities emphasized a number of times that they strongly believe in the “train the trainer” approach to training. Under this approach, a representative of an organization is trained and, in turn, trains the other members of his organization. While this approach is low cost, it is not necessarily effective as a training strategy. One disadvantage is that the intermediary trainer is not necessarily skilled at training. For example, one TTI had trained all of the TTIs chiefs who were then expected to train their staffs. There is no a priori reason to believe that chiefs make good trainers. Another disadvantage is that the time lag between when the training is received and when it is redelivered may be sufficiently great so as to cause a loss of memory. Also, it is reasonable to expect that the intermediate trainers absorption rate will be substantially less than 100 percent, thus the redelivered content will necessarily be diluted to the extent that the trainer failed to absorb the material in the first place. An advantage of this approach, however, is that the training can be redelivered in the actual work environment, and on a one-on-one basis—thus mitigating the need for special training facilities.

There are, of course, alternative training approaches that should be considered. For example:

(1) Classroom-based training This is the preferred approach when facilities and qualified training staff are available.

(2) “Train the trainer.” This is an alternative that can be effective under ideal conditions where the secondary trainer has a high degree of proficiency in the subject matter being taught. If such secondary trainers are not available, then another alternative may have to be chosen.
(3) Web-based training. Under this approach training material is developed or otherwise acquired that can be viewed using a Web browser. Such training material for Windows 95, Office, and Excel almost certainly exist already. One advantage of this kind of training is that it can be delivered to the user while he/she is sitting at his work station. Another advantage is that if a central web server is used the material can be updated in real-time in response to student feedback without creating new distributions.

(4) Video Training. This training is broken up into lessons and reviews delivered on video cassette(s). Typically, the videos are accompanied by course material such as practical exercises that are completed before proceeding to the next lesson. Such lessons are commercially available for Windows 95, Word, and Excel. They would need to be produced for the TAMP software. Cost may be an issue with this type of training if video equipment (VCR and Television) are not readily available onsite.

(5) Computer-based Training. This training mode typically uses a live version of the software with a helper program to guide the user through the steps to accomplish a task. So for example, the subject of the lesson may cover the registration of taxpayers. The helper software displays a window describing the steps required to complete the task. The user performs the steps while the helper program monitors his actions. The help program alerts the user when a misstep is made or when alternatives exist and decisions need to be made. The helper program can either be passive and simply provide textual feedback information, or active and actually take over control of the mouse and keyboard to demonstrate a feature, or it can be somewhere in between. This software can be difficult to develop. It has the advantage of bringing the user as close as possible to a real-time training experience. Obviously, the availability of a computer system with the TAMP system loaded is a prerequisite for this type of training.

The last three of these alternatives all have the advantage of being self-paced. Also, the training can be delivered at the leisure of the student. However, a disadvantage is that the production and delivery of this type of training may be new to the STS and might therefore be difficult to produce in the near term. If any of these three training methods are used, they need to be complemented by a dedicated hotline support person(s) at the RNIVTS or elsewhere who is available on a full-time basis to answer e-mail or telephone calls.

Training materials: The lack of centralized training materials development has lead to low quality of training materials and to duplication of effort. The training that has been created at the STI and TTI levels is based on the Software User’s Manuals and may not include valuable content such as course notes and class exercises. A number of systems users had received no training at all. The training that has been delivered so far seems to be focused generically on MS Office applications such as Word and Excel.
c. Recommendations

Training staff: Although the train-the-trainer approach is not the most desirable, the full deployment of TAMP to all the TTIs throughout the Russian Federation would entail the training of approximately 180,000 staff. Even confining the training to only the pilot STIs would involve training of over 6,000 staff. The training of a large number of people in a short period of time with inadequate facilities is a daunting task. The strategies considered most realistic, however, require some limited classroom training and the “train the trainer” approaches.

Training materials: The STS should create an STS-level unit with responsibility for producing necessary training materials.

Training facilities: The STIs and TTIs need to include in their budgets provisions for expansion of the training facilities.

Software development

a. Findings

It was difficult to determine the exact status of training of inspectors in the software being developed by RNIVTS. Some application programs are not yet developed, e.g., audit selection and data base conversion, while other applications are in test stage, but their status is not certain.

b. Issues

It appears that some limited training was provided in the basic operations of the Windows environment, but little in the way of training in the use of the RNIVTS-developed applications. The staff of RNIVTS was present to assist the local tax officials in demonstrating the capabilities of the software during the review. In a number of instances RNIVTS staff had to intervene to demonstrate some more complex features of the system with the explanation that the local staff has not fully completed their training.
c. Recommendations

RNIVTS should be required to fully document the current software and all users should be trained in all aspects of the software.

Enforcement staff

a. Findings

Staff of the pilot offices in Nizhny Novgorod and Volgograd received some training in modern enforcement techniques of arrears collection and in interview techniques for arranging part-payment terms for delinquent payers. However, audit or investigative techniques training was not provided.

b. Issues

Staff of the STS has received a variety of training offers from technical assistance providers funded by the US AID, from the European Union and others. Audit techniques training, training in investigative techniques, arrears collection training has been attended by any number of STS staff and the training has been of a generic nature. The original TAMP project, however, envisioned that training were to be provided as a corollary to software development. This did not happen, however.

c. Recommendations

Training should be tailored to reflect changes in the procedures and work approaches resulting from the changes in operations due to pilot office operations. If the budget permits, tax inspectors involved in field audits should receive accounting and auditing techniques training.

STS should take the lead in developing training plans on a solid basis and ensure that they are implemented. STS must develop the training infrastructure, develop courses, select and train instructors, and allocate adequate funds for all facets of training in the two test regions. Specific attention must be given to skills training for employees involved in implementation of information technology initiatives, and retraining of displaced employees to increase their level of professionalism.

A Tax Administration training guide and other training materials should be produced from the current operational process base to help increase the efficiency of tax administration staff.
Appendix 1
Terms of Reference
Expansion of the Tax Administration Modernization Program

General

The purpose of this document is to specify the tasks required for the development of a blueprint for a national tax administration modernization effort. The State Tax Service (STS) of the Russian Federation (RF) has determined that modernizing its operations is one of its top priorities and therefore desires to review the Tax Administration Modernization Project (TAMP) pilot operations currently being tested in the Nizni Novgorod and Volgograd Oblasts and to use those experiences to guide it in development of a strategic plan for national implementation. The STS has requested Georgia State University’s (GSU) assistance in this effort.

Background

The modernization effort pilot project started in February 1993 in the local offices of Moscow City (Taganskaya) and Moscow Oblast (Lubertsy) with International Monetary Fund (IMF) assistance and support of the European Union. The second phase of the modernization project, with World Bank support, has sought to introduce modern tax administration methods on a larger scale in about 110 offices in two regions (Nizhni Novgorod and Volgograd). In both cases the approach was to move the organizational structure of the STS to a more functional orientation; introduce a self-assessment system for filing returns and paying taxes; use a taxpayer registration process and taxpayer identification number system; introduce computer systems to maintain accounts of taxpayers tax liabilities on a current basis, to rapidly detect non-filers and non-payers; selective, in-depth audits of taxpayers; to simplify tax forms and to provide training to staff as well as taxpayer education to the general public. In general, recommendations were to initiate reforms with control over the main Federal taxes, i.e., VAT, enterprise profits taxes, excises and withholding of income taxes by employers.

Objectives

The objectives of the GSU effort will be to (1) review systems and procedures already introduced and determine to what extent the original performance objectives were met; and (2) formulate recommendations for increasing the effectiveness of current efforts and prepare a roadmap for national roll-out of reforms including other aspects not covered in the current modernization plan.

The specific tasks will include:

(1) A review of the taxpayer identification number structure and registration


procedures; return filing and payment processing; return forms design and their relationship to a system of self-assessment; control of stop filers and delinquent taxpayers and procedures for arrears collection; audit planning and selection methodology; taxpayer information and education; accounting for revenue and relationships with the banking sector.

(2) An assessment of the scope and progress of computerization. Determination of further application program needs, as well as hardware, software and technical assistance needed to support an expanded tax administration program in the pilot office Oblasts and the outline of a plan for nation-wide computerization accordingly;

(3) An analysis of the organizational structure of the STS in the field, the links and relations between the headquarters, the Oblasts and TTIs, the structure and geographical dispersion of TTIs, the systems of reporting and supervision, and formulation of measures to improve the functioning of the administration;

(4) An analysis of the personnel management problems, including numbers and quality of staff and their job descriptions; performance incentives; management information; internal control and supervision; review of training provided to equip staff to perform their new functional responsibilities; and formulation of recommendations aimed at strengthening the organization and its management;

(5) Design of a strategy and action plan to implement the recommended measures and identify areas for assistance through long term advisors.
Work Plan

GSU intends to accomplish this assignment in the following steps:

(1) Develop the detailed work plan and, before initiating further work, submit it to the STS on the assumption that a Steering Committee is in place to approve it. The resident team leader will develop individual terms of reference and will provide background information to all team members to ensure that the team will be knowledgeable of the current issues before the field work starts.

(2) Coordinate with the World Bank TAMP task management team and USAID to ensure that the objectives of the work are clear and supported by all parties and will keep the IMF Senior Advisor apprised of its work. Ensure the availability of background information and documentation to properly coordinate all facets of work with the pilot offices.

(3) Visit the pilot Oblasts to review current operations and plans for the immediate future. Make on-site visits to the two pilot State Tax Inspectorate offices and a number of their respective Territorial Tax Inspectorates. Visit the offices of the software development contractor and discuss their approach to software development.

(4) Interview managers and staff of the pilot offices to determine what changes have been instituted and what improvements in the operations have occurred. Study the changes to the organizational structures of the STIs and TTIs and the institutional arrangements put in place (i.e., functional descriptions of the organizational structures, position descriptions and procedural guidelines). Meet with managers and staff of the GNVTS to determine progress in development of the computer system (overall logical design of the system, provision for development of application programs that are to eventually become a complete design), development of specific application programs already installed (e.g., validation and verification procedures built into them), development of complementary manual instructions and procedures to control input into and output from the computer, and ancillary features of the modernization program (i.e., steps taken towards the development of a self-assessment system and the design of the Taxpayer Identification Number system), the steps taken, if any, to improve the detection of stop-filers and non-payers and to rationalize the audit process.

(5) Analyze the results of the interviews and develop a report with recommendations for the decision-makers of the STS. The report is to include recommendations for specific actions, estimated costs, priorities and time frames for implementation of the recommendations.
Deliverables

A report to STS management that will cover (1) a critique of current modernization efforts highlighting positive accomplishments and areas where results did not reach performance objectives set out at the beginning of the project, (2) recommendations on what further actions should be taken to acquire hardware and systems software and what are further application program development needs. Report to include “order of magnitude” cost estimates and priorities for implementation, as well as organizational restructuring requirements and training needs.

Level of Effort

The GSU team will be under the overall direction of the resident team leader (Allan Firestone) and include experts in revenue accounting and returns processing (Frank Jenkins & ?), computer systems (Kevin Whelan), audit (Browning & Lovell), collections (Bill Lefbom) and human resources (Browning).

The GSU team will be supplemented by two or more members of the STS who will participate in all field review activities and in the development of the final report.

The combined team will devote one week at STS headquarters, ten days in Nizhni Novgorod one week in Volgograd and three weeks analyzing the results of its review and preparing a report for STS management.
Appendix 2
Nizhny Novgorod Visit

November 16, 1998

Nizhni Novgorod STI Office

1. Mr. N. Polyakov  Head of Nizhni Novgorod STI Office  (8312)-32-11-57
2. Mr. S. Malyshev  Deputy Head of Nizhni Novgorod STI Office  (8312)-36-55-82
3. Mr. B. Bilkovsky  RNIVTS Director  (8312)-44-12-90
4. Mr. S. Totmin  Head of the Department for Electronic Data Processing of Nizhni Novgorod STI Office  (8312)-32-77-03
5. Mr. N. Pyskarev  Head of System Maintenance Department of Nizhni Novgorod STI Office  (8312)-32-76-89
6. Ms. V. Pavluchenok  Head of Leninsky rayon TTI  (8312)-55-04-15
7. Mr. S. Egorov  Head of Balakhninsky rayon TTI  (8244)-2-12-32
8. Ms. A. Zharinova  Head of Semenovsky rayon TTI  (8262)-2-14-05  (8262)-2-26-84

November 17, 1998

Organizational Issues Team-Nizhni Novgorod STI Office

1. Mr. S. Malyshev  Deputy Head of Nizhni Novgorod STI Office  (8312)-36-55-82
2. Ms. I. Kobyakova  Deputy Head of  the Department for Taxpayers Record Keeping  (8312)-32-76-85
3. Mr. D. Kamenev  Head of the Dept for Taxpayers Audit and Interaction with Law Enforcement Bodies  (8312)-32-76-84
4. Ms. N. Mamykina  Deputy Head of Nizhni Novgorod STI Office  (8312)-36-38-64
5. Mr. A. Telegus  Senior Tax Inspector of the Department for Physical Person Taxation  (8312)-32-75-40
6. Ms. L. Solovyeva  Head of the Department for Large Taxpayers and Arrears Collection  (8312)-32-76-40

Technical Issues Team-RNIVTS

1. Mr. B. Bilkovsky  RNIVTS Director  (8312)-44-12-90
2. Ms. M. Sidorenko  Deputy Director  (8312)-44-16-90
3. Mr. S. Mutchin  Head of System Programming Group  (8312)-44-53-98
4. Ms. N. Bazhenova  Head of Task Assignment Group  (8312)-44-16-19
5. Mr. I. Talashkevich  Data Base Administrator  (8312)-44-46-72
6. Mr. A. Petrikov  Head of Installation Group  (8312)-44-25-13
7. Mr. I. Sergeev  Analyst  (8312)-44-46-72
8. Mr. N. Pyskarev  Head of System Maintenance Department of Nizhni Novgorod STI Office  (8312)-32-76-89
November 18, 1998

Leninski rayon TTI

Organizational Issues Team

1. Ms. V. Pavluchenok  Head of Leninsky rayon TTI  (8312)-55-04-15
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November 19, 1998

Balakhninsky rayon TTI

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November 20, 1998

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## Volgograd Visit

**November 23, 1998**

### Morning – Volgograd STI Office

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**November 24, 1998**

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Appendix 3

Position Description: Tax Inspector “Collection Arrears Specialist”

Note: some of the tasks listed below are currently under the jurisdiction of the Tax Police. Also, current law in the Russian Federation may not give a Collection Arrears Specialist the authority to do some of the listed tasks. Modern tax administrations have tax laws and the functional organizational structure which allows the Collection Arrears Specialist the administrative authority necessary to collect arrears. If the Tax Police reported to the STS and tax laws authorized administrative enforcement to collect arrears the position description should include the following skills, degree of independence, etc.

Performance Skills Required

! Must have a degree from an institute or university

! Must be knowledgeable in the application of tax and bankruptcy laws

! Must be fully capable of doing independent research regarding tax laws pertaining to the position. This includes not only tax laws but also laws regarding ownership of property and any prior attachments on the property.

! Must understand the legal requirements for different types of business organizations including legal persons, physical persons who are entrepreneurs, government owed enterprises and foreign owned businesses doing business in the Russian Federation

! Must have the appropriate and effective oral communication skills.

! Must have the personal relations-skills to assure taxpayer is put at ease and cooperative.

! Must be able to explain to the taxpayer in a professional and convincing manner that is in their best interest to comply by paying their arrears (or filing a declaration) and complying in the future without the help of the Collection Arrear Specialist.

! Must have excellent writing skills for report preparation purposes

! Must have the investigative skills to find assets and sources of income which are not disclosed by the taxpayer and his representative or readily apparent in taxpayers financial records.

! Must be skilled in analyzing financial records provided by the taxpayer as well as other sources to determine market value of taxpayers assets and the taxpayer’s ability to satisfy current arrears and comply in the future.
To locate the taxpayer, his assets or income sources incumbent must have complete knowledge of how to best use information sources such as neighbors, business associates, other government organizations, banks, public records and other financial institutions.

Must be able to initiate enforcement actions such as issuing collection orders or arresting of taxpayers property. Must have the skills to auction, or arrange for auctioning, of arrested property in order to attain the highest potential revenues.

Must use time effectively by not spending too much time in repeatedly trying to convince taxpayers to resolve their arrears before initiating some form of enforcement action.

**Independence**

Must be able to function independently without assistance from others

Must demonstrate effective work habits

Must exhibit a confident manner when working with taxpayers and their representatives

Must exercise good judgement at all times

Must be able to make independent decisions and initiate necessary enforcement including issuing collection order to banks and other third parties or arrest of taxpayers property.

**Working Environment**

Must be physically capable of working outside of the office

Must be capable of moving from location to location to locate taxpayers or their assets.

Must be capable of performing duties in often less than desirable situations

Must be capable of working alone without support
Supervision Required

! Must be capable of performing duties with minimal supervision

! Must be trustworthy regarding work habits

! Must be ethical in all dealings
Appendix 4

Position Description: Tax Inspector “Data Entry Transcriber”

Performance Skills Required

! Must have at least have a certificate from a secondary school

! Understanding of the complexities of the tax law is not required, however, the incumbent must be able to detect data which is out-of-the-ordinary and bring it to the attention of his/her manager

! Must have the appropriate oral communication skills to receive verbal instructions from a manager and be able to ask his/her manager questions if additional clarification or instructions are required

! Must recognize the different types of tax declarations and registration forms in order to select the correct computer template for key entry.

! Must be able to read and transcribe handwritten alpha and numeric characters from a variety of tax declarations and registration forms.

! Must have demonstrated proficiency in the use of the numeric keypad on a computer keyboard.

! Must be able to read and follow specific written or oral procedures regarding what data fields to transcribe

! Must be able to type (key enter) at least 40 words per minute with an accuracy rate of less than 1% of data entered

Independence

! Must be able to turn the computer on and off and select the appropriate screen or computer template without assistance.

! Must understand how to type and use a numeric keyboard without assistance.

! Must demonstrate efficient work habits
Working Environment

! Must be capable of working in an office environment with other Data Entry Transcribers

! Must be physically capable of reading data from a tax declaration or registration.
! Must be physically capable of key entering data into a computer using a keyboard and numeric pad.

! Must be able to work in front of a computer monitor.

! Normal work contacts consist of the incumbents manager and fellow employees who normally perform similar tasks. Incumbent is not expected to have any contact with individuals outside of the STS.

Supervision Required

! Works under the direction of a manager who is normally present in the same location as incumbent

! All work assignments come from the employees immediate manager. When a work assignment is completed the employee is expected to ask their manager for additional work.
Appendix 5
Position Description: Tax Inspector “Taxpayer Service”

Performance Skills Required

! Should have some college work completed

! Must be knowledgeable in tax laws necessary to determine accurate registration and declaration filing issues

! Must be able to research manuals, tax form instructions and non-complex tax law issues

! Must have effective oral communications skills

! Must have personal relation skills to function with taxpayers in a non-confrontational environment

! Must be able to communicate adequately in writing concerning taxpayer inquiries and complaints

Independence

! Must be able to function independently with minimum assistance from others

! Must demonstrate effective work habits

! Must exhibit a confident manner when working with taxpayers

! Must exercise good judgement at all times

Working Environment

! Must be physically capable of meeting position requirements

Supervision Required

! Must be capable of performing duties with some supervision being required.

! Must be ethical in all dealings
Appendix 6
Position Description: Tax Inspector “Field Auditor”

Performance Skills Required

! Should have an accounting degree or equivalent
! Must be knowledgeable in the application of tax laws
! Must be fully capable of doing independent research regarding tax laws
! Must have appropriate and effective oral communication skills
! Must have personal relations-skills to assure taxpayer is put at ease and co-operative
! Must be able to explain complex areas of the law in a simple understandable manner
! Must have excellent writing skills for report preparation purposes
! Must be skilled in accounting knowledge and understand the operations of different type businesses
! Must be skilled in auditing techniques, such as recognizing issues not readily apparent in the financial records
! Must use time effectively by not expending too many hours on non-productive audits

Independence

! Must be able to functions independently without assistance from others
! Must demonstrate effective work habits
! Must exhibit a confident manner when working with taxpayers
! Must exercise good judgement at all times

Working Environment
Must be physically capable of meeting position requirements

Must be capable of moving from location to location
Must be capable of performing duties in often less than desirable situations

Must be capable of working alone without support

**Supervision Required**

Must be capable of performing duties with minimal supervision

Must be trustworthy regarding work habits

Must be ethical in all dealings
Appendix 7
Functional Descriptions

Functional Responsibilities: Taxpayer Services – Territorial Tax Office

The Taxpayer Service function is responsible for planning, managing, directing and executing the TTI’s public affairs, taxpayer education and other Taxpayer Service programs and activities. The function provides authoritative, prompt, courteous and responsive services on taxpayer requests received via telephone, walk-in and correspondence regarding: pre-filing question; assistance in preparing declarations and registration documents, including self-help and actual preparation where the need exists: and assistance on questions relating to notices, form letters, and other communications received the by State Tax Service. Taxpayer Services may also be responsible for the receipt and transmittal declarations and other documents received in the local office to the Data Processing Center if applicable. The function manages the taxpayer education program by identifying education needs and developing and administering programs to meet those needs. Through public affairs the function implements and evaluates office-wide; programs for providing to the public through mass media communications media and advises local officials on matters where public interest or response is involved. Implements Federation and regional public affairs and supplements them as necessary to meet local needs.

The organization of the taxpayer service function may vary according to the size the local office, its managerial staffing and other local conditions.

Functional Responsibilities: Audit – Territorial Tax Office

Audit is responsible for administering the Territorial Tax Office-wide audit program involving the selections and examination of all types of tax declarations. The program involves the selective classification of declarations for field and office type audits, participates with agents of the Tax Police in the conduct of criminal tax fraud investigations if requested and provides technical support for the year round taxpayer service program and technical and accounting skills support for the collection of arrears function. In most offices the functional structure generally conforms to established patterns, depending upon the size of the local office. These pattern generally recognize three distinct groups of functions within audit that are know as planning and special programs, field and office audit units and a quality assurance review unit. In very large TTI’s a fourth unit; audit support and processing may be established. Where the size of the local office does not justify this fourth unit the services can either be assigned to planning and special programs, quality assurance review or handled by a larger office with the unit. Larger TTI’s may have the need for separate branches for field and office units. Branches of pure field units and pure office units are advisable when appropriate.

Where warranted specialization of field auditors and if possible units should be implemented.
Functional Responsibilities: Collection of Arrears Function – Territorial Tax Office

This function is responsible for administering the arrears collection activity involving the collection of all types of taxes and obtaining all type of tax declarations from stop-filers. The program involves using office and field techniques. The function also participates with agents of the Tax Police to obtaining required tax declarations from stop-filers or arrest and auction property. In most offices the functional structure generally conforms to established patterns depending on the size of the local office and type of workload. The office function handles in-office processing and collection of arrears activities such as sending notices, issuing collection orders, interviewing taxpayer and requesting payment. Additional office functions include securing collection information statements, agreements to pay, and keeping necessary reports. The field function is responsible for contacting taxpayers that do not respond to office functions. In addition to functions taken by the office field functions do further investigative work to locate taxpayers or their assets. They coordinate collection activities with the Tax Police including auction and sale of taxpayer assets. In a very large TTI, in order to have reasonable spans of control there may be more than one field group along with an office function. A small TTI may not justify a separate office function or even a manager. In this case office collection of arrears activities may be taken in another location. The manager of the Collection Arrears Specialist may be in a different location if the TTI is too small to justify a complete unit.
Appendix 8
Method for Large-Scale System Development Efforts

There have been several suggested process and planning documents for the STS to consider producing in support of its System Development environment. Each document should be placed in one book for easy reference and provided to each contractor or STS site developing software for the Tax Administration.

The following standard was created to assist engineering management in creating a sound engineering practices and procedures.

Considerations /Suggestions for Creation of a Good Systems Software Development Process

Development Work Breakdown Structure, (WBS). There is no substitute for a complete outline of products required in order to develop a system. The following outline contains such a listing. The STS should provide a published listing of an approved WBS to all project managers required to perform tasks for the project. The WBS can be described as a schedule which resources are applied.

Standard/Scheduled and Repeatable Tasks and Milestones

Benefits of a WBS. (1) The work breakdown structure presents a project with a clear path of tasks, average duration, required resources and key deliverables required to successfully complete a project. It is a critical element of the repeatable process. Without the WBS, each product will develop products in an unpredictable fashion. This makes maintenance and understanding system development decisions difficult. Non-standard development creates continuity problems, since migrating development personnel must become use to a different format when moving to a new project. (2) The development schedule permits a project to visualize dependencies better. (3) The WBS is a management metric, measuring a projects progress throughout the life cycle.

Activities, Work Breakdown Structure (WBS).

The following WBS is based on a systems approach and SSADM. The STS can select its own method, however it should consider the rigors of a strong, easy to use and understand methodology.

The GANTT Chart attached to this report (Appendix 10) is based on this appendix and its method.

The Standard Generic WBS that follows is strongly recommended for projects intending to deliver systems under SSADM.
WBS Listing for Software

Module A. TAM Project Level 1

The Program or TAM Project Level of development is the integrating level. The following products are WBS elements for Level 1. These products are one of a kind. At the conclusion of this level the functional baseline will be established. This segment of life cycle development includes management planning, (the management procedures for development systems). Each life cycle management plan contains processes germane to the process indicated by the plan title. Properly prepared management plans put into place development systems that avert problem development and increase chances for success.

- Process A2.1 Create the Software Development Plan.
- Process A2.2 Create the Configuration Management Plan.
- Process A2.3 Create the Test and Evaluation Master Plan.
- Process A2.4 Create the Systems/Software Quality Management Plan.
- Process A2.5 Create the Maintenance & Transition Support Plan.
- Process A2.6 Create the Transition Plan.
- Process A2.7 Create Integration Plan.
- Process A2.8 Create the Systems Implementation Plan.
- Process A2.9 Create the Data Management Plan.
- Process A2.10 Create the Program Security Plan.
- Process A2.11 Create the Acquisition Plan.

End of Module A
Begin Module FS. Feasibility Analysis.

Feasibility is an integral part of the SSADM method and most systems methods. SSADM prescribes that feasibility be accomplished once in a project's lifetime. The plan prescribes, once the functional baseline is established, and top-level systems described in the Concepts of Operations Document and Requirements Document are ready for analysis, a detailed Feasibility Analysis should be accomplished to determine (1) is the technical proposal within the capability of the project, (2) within the schedule outlined by management, (3) and within available funding limits. Additionally, what are the alternatives, (project fall back position), should a risky path be adopted, and mitigation procedures need to be adopted? This analysis is accomplished on enterprise-wide candidate development systems and a report outlining feasibility, risks, and risk mitigation is documented.

- Task Step 000 Collect and Study Approved Functional Baseline Documents.
- Task Step 010 Prepare for Feasibility Study.
- Task Step 020 Define the Problem Areas.
- Task Step 030 Select the Feasibility Options.
- Task Step 035 Perform Risk Analysis and Mitigation on All Feasible System Selections.
- Task Step 040 Assemble Feasibility Report.

Project Planning Phase.

Although project enterprise-level planning is complete, the last task required is to complete a Project Charter, (defined as the minimum required start-up documents), for each project before deployment. This task occurs just before the nomination of the project team. The Project Charter contains, but is not limited to:

- The Program or Top-Level Schedule, (with the individual project schedule highlighted (and stress placed on project delivery of baseline summary documents)).
- The Project Budget.
- Top-Level Consolidated Plans Document.
- Strategic Plan.
- Concepts of Operation (Section that describes the system under development).
- Extract of the Top-Level Requirements, indicating what system requirements are to be analyzed designed and delivered).
- ICASE Context Diagram, and Zero Level DFD plus access instructions to the project ICASE environment and transforms in the DFD for decomposition. The ICASE Manual and Operations Guide).

The project manager receives the above information and standardized WBS, and prepares a project plan. Both project charters and project plans are placed, once accepted under document control. Adjustments must be coordinated.

- Process A7 Create Project Charters. [Project n]
- Process A8 Create Project Master Plan.
- Process A9 Create Project Operating Instructions (From Top Level Management Plans).
Beginning of TAM Level II. Analysis Level (Project Formal Commencement of Activities)

TAM Level II activities commence with a project executing RA Analysis using the SSADM methodology. Although there is only one TAM Project Level I activity, there may be two or more Level II Analysis Project level activities. CM coordination between Level II project activities is critical to TAM process integration. Generally, the steps in this section follow SSADM required activities.

Module RA.

Analysis Stage.

- Task Step 110 Establish Analysis Framework.
- Task Step 130 Investigate Current Processing.
- Task Step 120 Investigate and Define Requirements.
- Task Step 140 Investigate Current Data
- Task Step 150 Derive Logical View of Current Services.
- Task Step 160 Assemble Investigation Results.

Business System Option Stage

- Task Step 210 Define Business System Options
- Task Step 220 Select Business System Option
- Process RA 1 Create RA Summary Baseline Document.

Module RS.

- Task Step 310 Define Required System Processes.
- Task Step 320 Develop Required Data Model.
- Task Step 330 Derive System Functions.
- Task Step 340 Enhance Required Data Model.
- Task Step 350 Develop Specification Prototypes.
- Task Step 360 Develop Processing Specifications.
- Task Step 370 Confirm System Objectives.
- Task Step 380 Assemble Requirements Specifications.
- Process RS-1 Create RS Summary Document.
- Process RS-2 Acceptance of Project Application System Specifications. Establish the Allocated Systems Baseline. Coding teams can now begin creating systems and prototypes.
Module LS.

Technical System Option Analysis Phase of Development.

- Task Step 410  Prepare the Technical Business System Options.
- Task Step 420  Select the Technical Business Systems Options.

Logical Systems Design Phase of Development.

- Task Step 510  Define User Dialogues.
- Task Step 520  Define Update Processes.
- Task Step 530  Define Inquiry Processes.
- Task Step 540  Assemble Logical Design.
- Task Step 550* Create Users Manual. [*]
- Task Step 555* Create User Training Lesson Plans. [**]
- Task Step 556* Create User Training Aids. [**]
- Task Step 560* Create Application System Test Specification.

End of Level II. Analysis Level.

Beginning of Level III. Product Design, Construction, Unit Test, Integration Test.

There could be many systems described by one analysis project. These become coding assignments. Once the development cycle has established the allocated systems baseline, and produced a coding specification, code can be generated and or produced by personnel dedicated to that activity.

The project produces products for use, and establishes the product baseline. Products are then extensively tested for fitness and use in the production environment. SSADM does not adequately address construction, unit testing, and integration testing. During this period the tasks and products listed below are accomplished. The tasks listed below produce and test products in accordance with acceptable system development guidelines used in industry.

Module PD. Physical Design.

Physical Design and Architectural Binding Phase of Development.
- Task Step 610  Prepare for Physical Design
• Task Step 620  Create Physical Data Design
• Task Step 630  Create Function Component Implementation Map
• Task Step 640  Optimize Physical Data Design
• Task Step 650  Complete Functional Specification.

• Task Step 660  Consolidate Process Data Interface.
• Process PD-1  Create Physical Design Report.

Construction, Testing, Packaging and Distribution Phase of Development.

• Task Step 670  Assemble Physical Design.
• Task Step 680  Create Users Manual Pages.
• Task Step 690  Create Systems Operations Manual Pages.
• Task Step 700  Design Package for Distribution {Version, Distribution Media, Container, Page Changes and Installation Instructions}.

Major Module UT.  Unit Testing.

• Process UT.1 Conduct Unit Test (In accordance with Task Step 560).
• Process UT.2  Unit Test Report.

Major Module API.  Application Integration Binding and Test.

• Process API 1.  Conduct Integration Application Test.
• Process API 2.  Integration Application Test Report.

Major Module FA.  TAM Project Integration, Functional Audit, and Test.

• Process FA 2.  Conduct a Functional Audit.
• Process FA 4.  Release Authority for Application for Field Test.


Module IM.  Implementation.

• IM 1.  Prepare Site for Installation.
• IM 2.  Prepare Training Report.
• IM 3. Installation Operations.
• IM 4. Field Testing under Operational Conditions.
• IM 5. Systems Implementation Report (Site n).

STANDARD WBS Listing for Hardware Acquisitions.

Module A. Hardware Top-Level Analysis and Design.

The Hardware Procurement Method suggested below does not contain detailed organizational contracting steps, (since these vary from organization to organization). The hardware procurement method begins as a part of an integrated system, (specified and described as one system in the Concept of Operations, Top-Level Systems Requirements Document, and Integrated Systems Architectures document). Requirements are then allocated to hardware projects once software has been well enough described to get proper system performance specifications. This does not usually happen until the end of the system development lifecycle. It is however, understood that some procurement cycles take years to complete. And to that end, hardware procurements occur up front. However, it is strongly recommended that this practice be severely limited until the new system is properly specified.

• Process A3. Participate in the Creation of the Concept of Operations.
• Process A4. Participate in the Creation of the {Systems} Top-Level Requirements Document.
• Process A5. Participate in the Creation of the {Systems} Integrated Architectures Document.

End of Module A.
Begin Module FS. Feasibility Analysis.

- Task Step 000 Collect and Study Approved Functional Baseline Documents.
- Task Step 010 Prepare for Feasibility Study.
- Task Step 020 Define the Problem Areas.
- Task Step 030 Select the Feasibility Options.
- Task Step 035 Perform Risk Analysis and Mitigation on All Feasible System Selections.
- Task Step 040 Assemble Feasibility Report.

Project Planning Phase. Acquisition Project Initiation: Project Charter.

The Project Charter contains, but is not limited to:

- The Program or Top-Level Schedule, (with the individual project schedule highlighted (and stress placed on project delivery interim and final system specifications)).
- The Project Budget.
- Top-Level Consolidated Plans Document.
- Strategic Plan.
- Concepts of Operation (Section that describes the system under development).
- Extract of the Top-Level Requirements, indicating what hardware system requirements are to be analyzed and specified).
- Preliminary Architectures.

The project manager receives the above information and standardized WBS, and prepares a project plan. Both project charters and project plans are placed, once accepted under document control. Adjustments must be coordinated.

- Process A7 Create Project Charters. [Project n]
- Process A8 Create Project Master Plan.
- Process A9 Create Project Operating Instructions (From Top Level Management Plans).
Beginning of TAM Level II. Analysis Level (Hardware Project Formal Specification Activities).

Module HWRA. Requirements Analysis.

- Process HWRA 5. Perform Capacity Analysis of Target System.
- Process HWRA 6. Perform Communications Requirements Analysis.
- Process HWRA 7. Perform Minimum Performance Requirements Analysis - (Based Performance Indexes outlined in the standard).


- Process HWRS 3. Update Inventory Analysis.
- Process HWRS 4. Create Target System Inventory.
- Process HWRS 7. Create a Budget Projection.

The project will be responsible for monitoring the installation of procured systems. This shall be done in accordance with local delivery and acquisition policy. The system architectures document (ISA Document) shall maintain version control, dependent on the deployment of assets and the date deployed.
STANDARD WBS Listing for Personnel Systems.


Begin Module A.


End of Module A.

Begin Module FS.

• Process PERFS 1. Perform a Personnel Analysis of CONOPS.
• Process PERFS 3. Write Job Description(s) for Each Target HR Asset and Grade.

End Module FS.


Personnel Top-Level Analysis and Design.

The personnel systems are developed by personnel and end users. They are integrated with hardware and software to form one complete system. Top-level requirements are divided between hardware, software and HR. HR development begins as a part of an integrated system, (specified and described as one system in the Concept of Operations, Top-Level Systems Requirements Document, and Integrated Systems Architectures document). Requirements are then allocated to personnel projects once software system has been well enough described to understand detailed human system requirements. This does not usually happen until the end HWRS Module and RS Module.

• Process A3. Participate in the Creation of the Concept of Operations. (Integrated with SW & HW)
• Process A5. Participate in the development of the {Systems} Integrated Architectures Document. (Integrated with SW & HW)

End of Module A.
Begin Module FS. Feasibility Analysis.

- Task Step 000 Collect and Study Approved Functional Baseline Documents.
- Task Step 010 Prepare for Feasibility Study.
- Task Step 020 Define the Problem Areas.
- Task Step 030 Select the Feasibility Options.
- Task Step 035 Perform Risk Analysis and Mitigation on All Feasible System Selections.
- Task Step 040 Assemble Feasibility Report.

Project Planning Phase. Acquisition Project Initiation: Project Charter.

The Project Charter contains, but is not limited to:

- The Program or Top-Level Schedule, (with the individual project schedule highlighted (and stress placed on project delivery interim and final system specifications)).
- The Project Budget.
- Top-Level Consolidated Plans Document.
- Strategic Plan.
- Concepts of Operation (Section that describes the system under development).
- Extract of the Top-Level Requirements, indicating what personnel systems are required, and will be analyzed).

The project manager receives the above information and standardized WBS, and prepares a project plan. Both project charters and project plans are placed, once accepted under document control. Adjustments must be coordinated.

- Process A7 Create Project Charters. [Project n]
- Process A8 Create Project Master Plan.
- Process A9 Create Project Operating Instructions (From Top Level Management Plans).

Beginning of TAM Level II. Analysis Level (Hardware Project Formal Specification Activities).

Module PERRA. Requirements Analysis.


Module PERRS. Detailed Requirements Task Development & System Personnel Regulation(s).

Appendix 9
Diagrams

Elements of an Implementation Plan

A formal implementation process is complex. A diagram outlining a typical implementation process is shown below:

System Implementation Process

*Diagram 1, The System Implementation Process*

Legend: TLSRD = Top Level Systems Requirements Document; HR = Human Resources Development (lesson plans and training aids based on the software design; RA & RS= Life cycle design documents for SSADM; UM=User’s Manual; OM=Operator’s Manual; A=[Corrective Action]; CM=Configuration Management; QA=Quality Management

Step 1 and 2 represent the systems and software development life cycle. During this phase of the implementation process, user’s and operator’s manuals are prepared in accordance with the system design.
Step 3 is when the STS IT Staff should prepare the Implementation Plan with the understanding that the organization is about to change the behavior of several thousand people with the introduction of a new system. The STS needs to take into consideration the Human Resources and skills needed to operate new software and work with new tax processes. The STS must know how the hardware and operating system works (e.g., WindowsNT and personal computers), and how software will work (e.g., audit software). A plan for training and meeting the needs of people in many different locations is needed in order to adequately address the dimension of the problem.

The plan must also address formal training facilities, handouts, brochures, and other aids to be used in changing the behavior of tax administrators in mass.

Installation of hardware and software must be considered.

A flexible timetable should be created and site-specific implementation teams nominated.

Step 4. When a system is ready to roll out it may have training, software, hardware and testing implications. Coordination of assets is needed to ensure the facility is prepared and personnel are ready to receive the new system. Training aids are mass produced.

The site is contacted and a schedule of events is worked out.

Step 5. The Training Team is usually the first team to begin work. Class work with portable software systems or classroom work alone is performed.

Step 6. The site personnel are prepared for installation by meeting with those personnel who will do the work. It is important that everyone knows what is about to happen during site preparation to avoid inconvenience and mission degradation.

Step 7. Install physical systems, (servers, communications, encryption devices, local network cabling, wide area network devices (such as routers), operating systems and personal computers). Testing takes place, and if there is a failure, corrective action is taken.

Step 8 Install software systems. Field testing of software is accomplished here.

Step 9. Parallel testing is accomplished to determine if the new system can return better performance.

Step 10. The system is accepted and an audit is accomplished. The audit allows personnel involved with the installation to ensure defects and problems do not manifest themselves at other locations.
Maintenance Support Process

The diagram below denotes a continuous maintenance cycle. The method depicted is outlined in the Work Breakdown Structure provided in Appendix____

Notice that changes enter the cycle and cause changes in the top level, mid level and lower level baseline documents defined in this report.

Eventually, the changes become different versions of software. At any moment in time the configuration of a system changes, and therefore a good maintenance plan can help coordinate the changes and provide a structured way of maintaining software excellence in the STS.

Diagram 2. The Software Maintenance Process
Diagram 3. The Software Maintenance Process

The diagram above shows the first change being deployed and many other versions of change in the maintenance cycle.
Test and Evaluation Process

The diagram below defines the testing process or phases of testing. A good testing program is essential if the STS begins to ship software to 89 STI’s and over 2000 sites. It is important that the software being developed is rigorously tested.

This process is based on the method and WBS provided to the reader in this paper.

Diagram 4, Test and Evaluation Master Process or Plan

Testing begins by placing acceptance criteria in your Top Level System Requirements document, and your level II RA and RS documents. The acceptance criteria helps the contractor by signaling how you plan to accept work accomplished toward engineering a solution to the requirements.

Using the acceptance criteria, and the sheer amount of work that needs to be accomplished, a test program plan is established which identifies resources, independent evaluation resources etc. The plan also identifies how to report test results and problems for evaluation and correction.

Finally there is the testing event itself. Unit test, evaluates a small often times single purpose item. Integration Level II testing involves testing a number of single purpose items together to
ensure one unit does not interfere with the results of another unit in the same software. Level I Integration test is when business area software is tested with other business area software to ensure cross boarder compatibility and error free operation. Finally there is operational and site testing before final acceptance. These steps are outlined in UT, API, and FA testing Modules of the WBS.

**Returns Processing**

**Chart #1 - General Overview of the Tax Administration of a State Tax Inspectorate**
Appendix 10
Gantt Chart of Activities Based on the WBS Provided in this Paper

Building a schedule is one of the most difficult tasks a System Engineer and Manager must accomplish. It depends on the efficiency and available resources, completion of previous dependencies, external forces, and many other situations. A good schedule is updated as changes occur and adjustments made.

The GANTT chart samples provided here consist of some of the suggested short term and mid term tasks outlined in this paper. It is also an incremental model, (building a few systems at a time).

The GANTT chart is also based on the WBS provided in the attachment. If the reader desires to see the tasks that are required to complete a phase of the project, refer to Appendix 8 of this document.
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Document Construction Guidelines

Choose a team composed of analysts, management, and users that have experience with the business systems under development. Choose personnel that understand the development methodology. Finally, team members should understand the re-engineered systems in the Concepts of Operation Document and the goals outlined in the Strategic Plan. The requirements team must be capable of transforming raw input from all of the represented entities into program specifications. They must also identify and apply general systems-level requirements such as performance, data integrity, safety, etc.

Here are some suggested questions that can be used to determine the completeness of the top-level system specification effort.

- What are the ‘reports that must be produced by the system? Will they cross project or organizational boundaries? What summary information does top-level management or operators need to do their job, (both screen output information and printed output information)? What is the user’s view of the organizational input data?

- What are the inquiries that must be supported by the system? Will the query cross project or organizational lines, (which may levy requirements on the affected projects or organizations)?

- What are the specialized inputs and outputs of the system (e.g. mail notifications, barcoded documents, electronic interface documents).

- What information is updated or changed as a result of conducting normal business? If interaction with the system is desired, where is it desired? What data will be changed or altered as a result? How are system error handled? For example, what happens to work in process if someone unplugs the system?

- What are the calculations needed to support the system?

- What are the constraints or business rules that apply to system processes? What does the system have to do to reflect organization business operations successfully?

- What synonyms for specific data may be used by external systems. For example, what are synonyms for the Taxpayer Identification Number (TIN) that are used by external systems (such as the pension system).
How safe must data on-line be? What would be the effect of catastrophic loss? What would be the effect of small losses? Can normal recovery actions suffice, or does the system have to operate at a high degree of reliability at all times?

What is the frequency of each type of input / update action? How would the user like it to appear on the screen?

What is the frequency of each type of report? How would the user like it to appear on the paper? What is the length of each report, (in lines)?

What is the frequency of each type of inquiry? How would the user like it to appear on the screen? and

What is the desired response time of each inquiry, report, or update action?

The information requested above will call for end users, and systems personnel to make value judgments about the system under development based on previous analysis outlined in the Strategic Plan and Concept of Operations. (1) The benefit of the added detail is to broaden our understanding of the challenge. (2) Focus the mid-level analysis manager on what is important in his or her area of responsibility. (3) Point out where there are performance dependencies and tradeoffs between projects.

Determine a unique number for each top-level general requirement. Devise a numbering system for all requirements that allows each to be uniquely identified and associated with a corresponding higher level requirement such that each can ultimately be traced to a top-level requirement.

If the STS decides to use automated ICASE technology, a context level CASE diagram should be prepared.

The next level required to be specified is the 0/level Data Flow Diagram (DFD). This level should define the internal interfaces and information flow between major process areas the project or program area has identified for development. This model should show all data stores used in support of system processing.

The purpose of the 0/level DFD is to segment the model into expandable branches, locking each diagram file to maintain contextual integrity. Each analysis project manager shall receive a complete, largely locked or restricted Integrated Computer Aided Software Engineering (ICASE) process and data model for interface reference. Each analysis manager will also receive an unlocked ICASE subset of the master process model to be developed or ‘decomposed’ by the project. It must be stressed, only the transform assigned to the analysis manager’s development area of responsibility will be available to his or her team. The data administrator shall control and be responsible for the integrity of the ICASE process and data model (to include all system descriptions, data definitions, attribute definitions, diagrams and I/O definitions).
The system is now segmented into sub-systems for development. The diagrams, complete with top-level system descriptions can now be delegated to analysis management for further analysis and development.

Compile and complete the Top-Level Requirements Document, and coordinate the findings with the HQ and the STI’s. Selected TTI users should be afforded the opportunity to review this important document.
Appendix 12
Integrated Systems Architecture
Purpose and Contents

The Purpose of the Integrated System Architecture

The purpose is of this early look at a physical system is simply to reconcile the hardware procurement cycle with the software development cycle, and ensures each hardware item is suited to its software component. As software is developed, hardware will be procured. Public sector procurement systems, like software development processes, take time to execute. Therefore, early in the development cycle for software, it pays to have a basic understanding of what hardware will be needed.

There are at least four good reasons for having a good early understanding of the physical system environment. They are:

1. TAMP Management needs to know how many and of what types of equipment to order to meet mission requirements, (as outlined in the TAMP Top-Level Requirements Document). The key question early on is whether the TAMP can afford the current modernization effort, as defined. What is the budget for hardware procurement?

2. TAMP Management needs to justify its capital investment requests. Without the Integrated Systems Architecture, management is only guessing as to what it needs to operate the new system. This leads to budget problems, and casts suspicion on management’s ability to carry out the project effectively.

3. Software development team managers need to know the target system environment, in order to make the most use of their software design talents. They also need to make modifications to equipment, when making that change is in the best interest of the system, users and the budget. Technology does not stand still, and timely modifications can lead to procurement of a better system that exceeds original specifications at a lower cost.

4. The procurement cycle is long, and, sometimes, World Bank or private loan terms are rather short. Therefore, it is necessary to make an educated prediction as to what hardware is needed to start the procurement cycle prior to software completion. Otherwise, it is possible for software to be completed, and hardware not be in place to field test, train STS staff, and operate tax application software.
Use of the Integrated Systems Architectures

The Integrated System Architecture document is used to support the types of computers and network equipment that need to be purchased. The numbers and size of an individual component of specialized equipment are based on the type of processes, size of the TTI, STI and National offices, and systems load where the equipment is installed. Further analysis, coupled with the Integrated Systems Architecture, will form the basis for justifying World Bank or publicly funded procurements.

The result of the requirement analysis is an early representation of a physical system for an exceptionally large integrated tax system for the Russian Government. This system qualifies as an exceptionally large system, because it is fashioned from more than two businesses that use and maintain data from the same data pool. The complexities begin to magnify when communication between two or more segment teams becomes necessary in order to maintain a stable development environment. The document is an aid for managing complexities in a multi-business environment.

Document Construction

The ISA should define three levels: (1) National Computing Center, (2) the STI and (3) the TTI. The STI and TTI’s will vary in size and physical system requirements. Once completed however, the ISA will establish almost exactly, what is required at each of these processing levels.
Appendix 13
CORBA Middle-ware

One architectural approach for the integration of diverse systems that has gained a wide following in recent years among government and large businesses is the Common Object Request Broker Architecture (CORBA) from the Object Management Group (OMG). The OMG is a consortium of several hundred companies including most of the world’s leading software producers and systems integrators. The mandate of the OMG is to produce interoperability specifications for open systems in a vendor and technology neutral way. Two of its primary products are the Internet Inter-ORB Protocol (IIOP) and the Interface Definition Language (IDL). The IIOP defines common rules for converting and packaging data, as well as rules for identifying, locating, and using software objects anywhere on a network. The IDL provides a pure interface abstraction for specifying APIs. It defines common data type primitives (integer, character, etc.) as well as more complex data structures (unions, sequences, etc.). It also defines rules for using these data types as input and/or output parameters in procedure calls, and rules for collecting these procedures into self-contained interfaces and packages of interfaces.

Products that implement the IIOP standard are called Object Request Brokers (ORB). There are dozens of ORBS on the market today. They run on virtually every modern platform. The leading ORBs are from Orbix and Visigenics. An ORB is bundled into every Netscape browser. IDL bindings are available for most commonly used programming languages as well. The combination of ORBS and IDL language bindings allows any system with any implementation on any platform at any network location to interoperate seamlessly with any other such system.

How can STS leverage this technology? Currently, the local tax Inspectorates are charged with collecting federal, regional, and local taxes. The TAMP software addresses only the federal layer. Yet information is contained in the TAMP software—registration data, for example—that is essential for administering local taxes. The STS has no control over how the regional and local taxes will be administered and what computer systems will be used for their administration. One Inspectorate may use a PC-based system with Visual Basic, while another might use a Macintosh-based system with C++. An external system might use an IBM mainframe computer with COBOL. All of these systems will have a common need to share data. Furthermore, regional and national systems, when they are developed, will need to access the TAMP data to implement MIS functions. The vendor and language neutrality of CORBA will allow all of these systems to interoperate through the IDL-based interface. In the future, as technologies and platforms come and go, the system as a whole will continue to interoperate so long as the interfaces are preserved.

Of course, this treatment of CORBA is necessarily simplistic and ignores many important considerations such as security, system reliability, and difficulties of configuration control. It also ignores the availability of a similar, but less open, offering from Microsoft called DCOM. For more information about CORBA and the OMG, see their web site at http://www.omg.org.
Mainframes are the big problem with Y2K, according to the conventional wisdom. Wrong, says Karl Fielder, CEO of London-based Greenwich Mean Time, which sells software to test and fix Y2K problems on PCs. He warns that only 2 percent of the world’s 300 million personal computers have been checked so far for Y2K compliance. He believes many companies will have to spend as much money making desktop computers compliant as they do on mainframes.

The least prepared sectors are: education, health care, government, farming and local services. Y2K spending next year in the US will siphon off 44 percent of information technology budgets, the firm predicts. "The economic and sociopolitical results from year 2000 failures can include panic, unrest, increased crime, food and infrastructure interruptions, and health and safety issues.

And US Congress is finally taking action. The House has approved the Y2K Compliance Bill (H.R. 4756), which now goes to the Senate. The bill urges the president to authorize Y2K czar John Koskinen to "take control of any critical federal agency system in jeopardy" of not meeting Y2K compliance deadlines, requires all federal agencies to report their progress to Congress and urges Clinton to promote Y2K awareness and encourage businesses to develop contingency plans.
Appendix 15
Internal Plan

Items of the Plan

<table>
<thead>
<tr>
<th>Date Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.12.98</td>
<td>1. Formation of convertors for PRO and ARMNI</td>
</tr>
<tr>
<td>08.12.98 – 07.01.99</td>
<td>2. Joint verification of corrected data bases at the Tax Inspectorate</td>
</tr>
<tr>
<td>31.01.99</td>
<td>3. Error removal identified during joint verification</td>
</tr>
<tr>
<td>08.12.98-01.02.99</td>
<td>4. Real data package run</td>
</tr>
<tr>
<td>01.02.99</td>
<td>5. Re-conversion with account of amendments and corrections</td>
</tr>
<tr>
<td>01.02.99-01.03.99</td>
<td>6. Corrections made after the real data run</td>
</tr>
<tr>
<td>01.03.99</td>
<td>7. Corrections and implementation of users’ proposals passed to the</td>
</tr>
<tr>
<td></td>
<td>regional Tax Inspectorate</td>
</tr>
<tr>
<td>01.03.99-01.08.99</td>
<td>8. Experimental testing in two TTIs, Joint work of RNVITS and the Tax</td>
</tr>
<tr>
<td></td>
<td>Inspectorate</td>
</tr>
<tr>
<td>01.07.99</td>
<td>9. Transfer to industrial use</td>
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<tr>
<td></td>
<td>10. Package support and improvement at the industrial use stage</td>
</tr>
<tr>
<td></td>
<td>During maintenance term</td>
</tr>
</tbody>
</table>

Improvements

<table>
<thead>
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<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.01.99</td>
<td>1. Analytical system</td>
</tr>
<tr>
<td>01.01.99</td>
<td>2. Electronic interface</td>
</tr>
<tr>
<td>01.01.99</td>
<td>3. Automated cameral audits</td>
</tr>
<tr>
<td>01.03.99</td>
<td>4. Field audit planning and criteria for audit selection</td>
</tr>
<tr>
<td>01.03.99</td>
<td>5. Creation of a list of taxpayers moving to another TTI</td>
</tr>
<tr>
<td></td>
<td>6. Work with natural persons</td>
</tr>
<tr>
<td>Request for postponing the date until 01.04.99</td>
<td></td>
</tr>
</tbody>
</table>

AGREEMENT # 20/97
For development of scientific and technical product
TAMP
Regional and local levels in the Client – Server structure”
June 20, 1997

Headings

Subject of the Agreement
Cost of Works and settlement procedure
Works acceptance procedure
Liabilities of the Parties
Other terms
Term of the Agreement and Legal Addresses of the Parties

Annex 1. Schedule and costs of works
Annex 2. Protocol of contractual price agreement
Appendix 16
Approach to plan development

Choose a team composed of analysts, management, and users that know the business, know the development methodology, and have a fair idea of what is being engineered (the future vision-Mission Statement and Strategic Plan).

Note: Identify, collect, and read all documents that describe the current system, organization or government documents describing the system under consideration.

Determine the processes that are needed to operate a tax system. Identify the data used by each process. Determine how that information is used today. Study manual and information based process steps in order to ensure you have a comprehensive view of each process. Allocate processes to business areas (which become a natural organizational scope for all system development that follows).

Model and describe the current system in diagrams and text.

Model and describe the future system vision in text, organized in the same manner that you organized the current system descriptions. The benefits of documenting and diagramming a re-engineered system are (1) System development continuity and consistency of business vision, (particularly for new personnel to the project); (2) communicating effectively with upper level management, legislators, external oversight and external business entities are presented a system description in terms understood by the layman; (3) presenting a clear documented effort traceable to goals and objectives listed in the Strategic Plan; (4) an idea of how system description may influence capital item purchase which are to be documented in the architectures document.

*Complete trace tables.* Trace tables are aids that (1) assist later in tracing processes to their sources; (2) trace new operational systems to their system legitimate sources, (3) acts as justification for overhauling the systems described. Link reengineered processes to law and to the Strategic Plan.

Document findings, and submit the ConOps for internal and external review.
Appendix 17
Information Document Matching

Reason for information document matching: To insure that accurate tax declarations are filed modern tax administrations receive tax related financial information from third parties. This reporting by third parties is essential to a self-assessment system. The tax administration is able to compare information received from third parties with the taxpayers’ tax declarations to verify that income or privileges claimed are correct. The information received also determines whether a taxpayer should file and is a critical supplement to the stop-filer program. Once the matching information is received it is then compared with the taxpayers’ declarations. Increased compliance is due to the fact that the taxpayers know that the tax authorities have received the third party information.

Information sharing: Third parties are required to furnish information to the tax administration and to the taxpayers that was obtained during the course of business activities. Third parties may be employers, financial institutions, legal persons, physical persons who are entrepreneurs, or a government institution. Normally, physical persons who are not entrepreneurs would not be required to furnish information returns.

Types of Information Declarations that may be required: The type of information reporting that would most benefit the tax administration must be balanced against the costs incurred by third parties to furnish the information. Information reporting can include income, transactions or privileges. The design and information contained on the tax declaration and the type of information received will determine how reporting errors are resolved. Resolving errors detected by information matching can range from sending notices to using field investigations when necessary. In addition to furnishing information on income, third parties may also be required to withhold taxes from the taxpayers. Some examples of information reporting by third parties that are required in other modern tax administrations and that may be applicable to the Russian Federation are as follows:

Income information reporting:

- Wages;
- Interest;
- Dividends;
- Payments for services on government contracts;
- Sales commissions; and
- Payments for fish or venison sold to a processor.

Transactions which may effect taxes reported:

- Purchase or importation of expensive cars;
- Large cash deposits in a financial institution;
- Large cash purchases of cars, jewelry, etc.;
- Sale of a house or real property;
- Sale of stocks;
Frequent trips in and out of the country; and
- Trips to tax haven countries.

Procedures for effective information document matching:

Taxpayer Identification Number (TIN): When furnishing an information declaration one of the most critical aspects is proper identification of the taxpayer. The third parties must obtain the taxpayer’s Tax Identification Number (TIN). Penalties are imposed for failure of the third parties to obtain a correct TIN and failure of the taxpayer to furnish a valid TIN.

Notifying Taxpayer: The most important feature of information reporting procedures is insuring that the taxpayers are aware of exactly what information has been furnished to the tax administration. Because taxpayers must receive the information in time to prepare their own tax declaration they must receive the information in a timely manner. Modern tax administrations normally prescribe information reporting formats which must be followed or they provide forms. Forms, if provided by the tax administration, normally have three copies—one for the taxpayer, one for the tax administration and one to be kept by the third party. An increasing number of third parties find it more economical to computer generate their own information declarations which adhere to formats provided by the tax administration. In those cases information declarations are generally supplied to the tax administration on magnetic media with a paper copy being forwarded only to the taxpayer.

Notifying the tax administration: Third parties provide the information on taxpayers which includes a TIN, entity information such as taxpayer name and address, the amount and type of income or transaction and their own name, address and TIN. Information may be provided to the tax administrator on paper or by electronic media. Electronic media, while most advantageous to the tax administration for processing ease may not be practical for small employers and other third parties. Normally criteria are established which requires electronic reporting if the number of information declarations exceed a specified number. Third parties should be encouraged to electronically transmit information declarations.

Ensuring compliance with information reporting: Third parties need to be informed of their information reporting requirements by the tax administration in a timely and appropriate manner. It is crucial that they are informed in sufficient time to allow them to establish their own internal procedures and systems to obtain and maintain the required information for transmission to the taxpayer and tax administration. Procedures for informing third parties can include media, information provided during the registration process and mail. Also, when taxpayers are audited the auditors should insure compliance with required information reporting. Special compliance type activities may be appropriate if noncompliance with information reporting requirements persists. Modern tax administrations have found that one of the major non-compliers with information reporting requirements has been government entities at every level—federal, regional and local.

Matching Information: The information returns received from third parties either on paper or in electronic format must be entered into a system and aggregated by taxpayer TIN. Obviously,
the data must be perfected before it is used. The aggregate data when matched to the returns may indicate an obvious error or a condition that must be analyzed. The nature of the data dictates how it will be used. Several examples follow:

**Wages not reported:** This is one of the easiest forms of noncompliance to detect by means of information matching. If the information received from the employers indicates income higher than reported on the taxpayers declaration it is a relatively simple matter for a computer to generate a notice to the taxpayer with the calculated additional tax. The taxpayer can agree and pay the additional amount and applicable penalties and interest. The information from the employer may be incorrect, therefore, the taxpayer must be given the opportunity to contest the addition to the proposed tax if the information received is not correct. The taxpayer may not have filed a tax declaration and the information received indicates that his income required that a tax declaration be submitted. A notice can be sent asking that the taxpayer file or furnish reasons why they are not required to file.

**Purchase of a expensive car:** The purchase of a large car is not of itself a violation of tax law. If, however, the taxpayer submits a tax declaration showing very low income or fails to file a tax declaration then this information may lead to uncovering substantial tax law violations. The purchase of a expensive car may be an indication of substantial income earned or VAT transactions.

**Payments for Services:** Depending on the service performed comparisons of the amounts shown by the third party compared to the amounts on the taxpayer tax declaration may indicate a tax violation or failure to file.

**Thresholds:** Not every potential tax violation detected by the matching information with tax declarations need be resolved. Thresholds need to be established so that tax administration resources and taxpayers time is not wasted on errors that would result in minimal additional tax. The threshold levels are normally established by the headquarters of the tax administration. They should not be included in the law because if threshold levels are public knowledge, taxpayers may deliberately evade by the threshold amount. Most modern tax administrations have establish thresholds to allow them to concentrate their resources on higher revenue producing activities. There is no scientific evidence to support the notion that overall compliance is eroded because minimal amounts of tax due are not collected. The cost to resolve the tax underreporting is generally the criteria used to determine the threshold level. For example, if the match shows under-reporting of wages by taxpayers a low threshold can be established and computer generated notices can be mailed to resolve the discrepancy. On the other hand if the mismatch or information can only be resolved by means of a field audit a much higher threshold must be established.
1. **Audit Planning at STS Headquarters**

The Audit Subsystem begins each year with a transmission of audit targets from the Headquarters Audit Directorate to each STI. The targets should be calculated based on a combination of historical data as well as current and forecasted conditions for the relevant regional economy.

The level of automation should be introduced here by providing an audit planning subsystem to assist in Headquarters nationwide tax performance analysis.

To prepare for Headquarters Annual Audit Target Guidelines, a Headquarters staff member would use a computer with the planning software installed to interrogate data collected over the last five years, (concentrating on the last filing season), and statistical data having been downloaded into STS computers from statistical sources. This creates a national and regional economic profile, separated by business sector.

The Headquarters should be capable of analyzing, for the purpose of audit, general economic and tax information based on a given tax sector, defined here as a (1) business activity (such as Banking), and (2) geographical area (a specific or all STI or TTI region(s)).

The audit planning software should be capable of analyzing statistical data for each region and estimate how effective the STI or TTI has been in narrowing the gap between expected state income based on GDP and actual collection. The Headquarters staff member should be capable of viewing a map of Russia, and areas shaded in red indicate those areas that are operating in the lower third. This will indicate areas which Oblast need the most improvement.

By selecting a region on the map, the computer should be capable of professionally displaying a detailed analysis and actual fiscal measurements for each region, sector within a region, and business class. Suggested improvements should be highlighted, and an automated report can be generated for tailoring, (the report to become the 'Annual Audit Target Guidelines').

Using the automated report, the National Headquarters can modify the fiscal gap and request the Audit Department in certain Oblasts to raise its compliance level a certain percentage over the year. Additionally, the Headquarters can guide STI Audit Departments by noticing national trends, which may deserve additional scrutiny. The Headquarters Annual Audit Target Guidelines should be sent as an attachment to an electronic mail message to each County Director, requesting the County respond with detailed plans in commensurate with Headquarters.

The planning subsystem should be a feedback-tuned system that uses nationally collected business, personal, audit result data and general tax office data to tune its systems. The system
2. **Audit Planning at the STI Level**

The STI Director and Audit Department Head evaluate the Headquarters Annual Audit Target Guidelines upon receipt. The Audit Department Head, and Section Managers should meet to discuss available resources needed to meet national revenue targets allocated to the STI, and planning data supplied by the Headquarters.

Based on available declaration data averages reviewed by the planning subsystem, and a local Typical Taxpayer Behavior Model tuned to STI region, and is performed to verify national data.

3. **Audit Selection Phase**

Audit Selection is the most critical factor in maximizing the Audit Department’s return on investment (basically rubles generated per unit of time spent conducting the Audit).

The Audit Department now will meet to identify individual audit targets.

Regional and a business sector’s referential, average, and modal profiles should be created in order to determine a population or business segment’s behavior with regard to tax law. Using mathematical models, based on research and data collected over time, the means are created to test each taxpayer against a range of parameters in order to determine to what extent a taxpayer has complied with Russian Tax Law.

The selection subsystem reviews the selected records, paying particular attention to areas identified as potential compliance problem areas. If the system selects a taxpayer, a Case File number is opened (after the selection has been validated by the department head), and his or her TIN is sent to the preparation phase for the type of audit to perform. Throughout the process the taxpayer’s complete data record, and peer data is available to the computer. The reason for the taxpayer's selection is known at the end of the process, and a range amount of potential of additional tax is also known.

4. **Audit Preparation Phase**

The Pre-Audit Selection period is characterized by assigning a tax audit team to a specific audit, notifying the taxpayer, providing the audit team with the credentials needed to conduct the audit (Letter of Authorization (LOA), and determining how the audit will proceed.

The Audit Team should be assigned by an Audit Workload Manager (WMS - usually the Head of Department, Section, or Bona-fide Representative).
An Audit Case Folder should be created from imaged documents. Information such as demographic data, declaration data, registration data, tax accounts data, and a rationale for why the targeted taxpayer was selected for audit is clearly communicated to the Audit Team Manager. Third Party Control Data (from police, customs or other agents) is also downloaded, and provided to the assigned Audit Team. Finally, an automated Letter of Authorization is generated and made ready for signature. The Head of the Audit Department signs and dates the letter. The Taxpayer is contacted, (unless the Audit is considered to be ‘operative’ in nature. An operative audit is a no notice audit, invoked when it is in the best interest of the tax office not to provide an advance warning, see operative audit below).

5. On-Site Audit Phase

The on-site audit phase should be supported by an expert subsystem that guides the inspector through the audit process. Since there are VAT, EPT, PIT, and excise tax types as well as local and regional tax types in the Russian Federation, each with different characteristics, a discussion as to what should be developed must be made by the STS IT Staff.

Operative Audit

Audit is a no notice inspection at the taxpayer’s business location or some other location used by the taxpayer. The purpose of the operative audit is to uncover potential violations of tax law, where prior notice might not be conducive to achieving the stated purpose.

The audit shall be prepared in a semi-secured room, the data reviewed, and the audit preparations made much in the same way as a classic audit would be organize.

A Letter of Authorization (LOA) is presented to the taxpayer, the audit process is briefly explained, and the taxpayer’s current account is discussed, while other auditors inspect the taxpayer’s premises. (See section on Tax Police).

The findings are prepared like any audit.
Appendix 19
Development of Taxpayer Identification Numbers

Introduction

The three basic tasks of any tax administration are to identify potential taxpayers, to assess the appropriate tax on them and to collect the tax and this view is generally in line with the IMF approach to tax administration reform. Thus, technical assistance efforts have focused on the introduction and use of taxpayer identification numbers (TIN) to identify taxpayers, as a first step in the reform of tax administrations in general, and more specifically, as a prerequisite to successful introduction of information technology into tax administration systems.

This paper addresses questions commonly related to the discussions of TINs, i.e., first, what is the role of TINs in fiscal reforms, second what are the characteristics of a TIN, third how are TINs assigned to taxpayers, and fourth, what is the role of other agencies in the use of TIN’s.

What is the role of TINs?

To identify taxpayers, the first task of any tax administration is to establish a register of all enterprises and individuals who are subject to tax. To accomplish this task, tax administrations generally depend on legislation that requires registration and that provides appropriate penalties for failure to register. The tax administration then has to ensure that there is sufficient publicity to make taxpayers aware of the requirement to register, that there are in place administrative arrangements for registration of taxpayers, and finally that sufficient staff resources are assigned to the task of physically canvassing all areas of the country to locate potential taxpayers and register those who have failed to voluntarily do so.

The registration process very often results in offices registering taxpayers by name, however, taxpayers often have the same or similar names, and are inconsistent in how they identify themselves. Although modern computer systems could be used to identify taxpayers by name with their address, date of birth, gender, business activity and other characteristics serving to

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2 In the United States, Canada, United Kingdom, Australia, and New Zealand the names Smith or Jones are very common. In Korea 20 percent of the population has the family name Kim, according to the New York Times of July 16, 1997 (pg A13). In the Peoples Republic of China the family name Li belongs to some 87 million citizens and has surpassed Zhang as the most widely used surname in the world according the Xinhua news agency, reported in Time magazine of May 19, 1997 (pg 25).

3 For example, an individual with a very simple name such as John Q. Doe could also identify himself to his bank or the tax department as John Q Doe or John Doe or J.Q. Doe or J. Doe, to name just a few permutations.
differentiate between them\(^4\) this would not, however, eliminate the problem of errors in transcription of data \(^5\).

The development and introduction of TINs is an attempt to avoid the difficulty of identifying taxpayers by name and through the means of assigning unique, permanent identifiers to taxpayers to enable tax officials to quickly and accurately identify them and to enable computers to distinguish one record from another.

The introduction of TINs has three major objectives: to facilitate the creation of a register of taxpayers that identifies their tax obligations; to detect through computer applications taxpayers who fail to submit returns (stop-filers) and taxpayers who fail to pay on time their tax liability (delinquent accounts); and to help cross-check information from various sources on taxpayer compliance. A collateral advantage of using a unique, permanent TIN is that it may become the standard identifier used by other government agencies\(^6\), banks and other commercial firms\(^7\).

**What are the characteristics of a TIN?**

A taxpayer identification number can be a straightforward sequential number\(^8\), include geographical designation of the office issuing the number\(^9\) or be biographically based, reflecting taxpayer characteristics\(^10\), although there are significant disadvantages to the last two approaches. The best and the simplest TIN is one that consists of a sequential number without any particular significance, that has sufficient room to accommodate future growth in population and economy and is short enough for most taxpayers to easily memorize.

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\(^4\) Unfortunately, except for date of birth, place of birth and gender all other taxpayer identifying characteristics can change. In the United States for example, approximately 20 percent of all taxpayers change addresses during the year.

\(^5\) See the following section for a discussion of transcription problems and the use of check-digits.

\(^6\) The customs administration is the agency most likely to be the next to use the TIN. Other agencies likely to have need for a TIN are the Ministries controlling quotas or issuing licenses for imports or exports, providing social security benefits, health insurance or unemployment benefits and motor vehicle registration agencies.

\(^7\) In the United States the use of the Social Security Number has spread to virtually all facets of the citizens’ lives. In addition to the Social Security Administration, welfare bureaus, unemployment offices, banks, motor vehicle administrations, schools, libraries, stockbrokers, insurance and credit card companies are just a few of the organizations that depend on the use of the SSN.

\(^8\) New Zealand uses a straightforward numeric sequence number with a check-digit.

\(^9\) Austria’s TIN consists of nine numeric digits, with the first two being the number of the tax office and the next two or three being the number of the community of residence, the next four or three the serial number and the last the check digit.

\(^10\) Sweden’s Personal Identity Number was assigned by the Church of Sweden until July 1, 1991. It consists of a six-digit date of birth, a three digit sequence number (odd for males, even for females) and a check digit. The sequence number is joined to the birth date by a hyphen which is replaced by a plus sign in the year the person reaches the age of 99.
A further requirement of a well-designed TIN is that it should be self-checking, that is, it should have a check digit, which is a number calculated from the digits forming the basic part of the TIN. Once calculated, the check digit is made a part of the taxpayer identification number, and serves to validate the accuracy of the taxpayer number, ensuring that the number has been correctly reported by the taxpayer or transcribed by the data entry operator. The check-digit can be placed anywhere in the identification number as long as the placement is always consistent, although it is generally appended to the basic number to form the complete identification number.

Generating check digits is generally accomplished by multiplying each digit in the basic number by a certain "weight" or factor and summing the results to obtain a total. The algorithm is used to generate the check-digit at the time that the TIN is assigned. Whenever the number is entered into the computer system during processing of taxpayer data, the same algorithm is used to recalculate the check-digit from the number (minus the check digit). The result is then compared to the check-digit that was transcribed. A difference between the computer generated and transcribed digits signals an error in data capture or in the information provided by the taxpayer. The check digit guards against transcription errors, in which a wrong number is written or transposition errors, in which the correct numbers are written but their positions are reversed.

A common algorithm for calculating the check digit with a very high level of accuracy is Modulus 11 with prime number weighing. This method of computing the check digit was developed by Frieden, Inc., and has been proven statistically to detect all transcription and transposition errors. It is the algorithm generally recommended by the IMF and by others advisors.

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11 In the former Soviet Union only enterprises were taxpayers and they were limited to only one bank account. The bank account number was a de-facto TIN and had a check-digit embedded in the center of the number.

12 A major exception to this rule is the United States where the Social Security number (SSN) serves as a TIN. It was developed concurrently with the origin of the Social Security Administration in 1937, well before the advent of computers. To overcome the lack of a check digit, the Internal Revenue Service generates a two-letter “check digit” for use only on turn-around correspondence, such as tax return mail labels, payment vouchers and other documents that taxpayers are expected to return to the IRS. These check digits are not made part of the SSN and most taxpayers are unaware of their purpose.


15 The following is an example of a TIN with an algorithm for generation of the check-digit:

<table>
<thead>
<tr>
<th>Sequential number</th>
<th>2</th>
<th>8</th>
<th>1</th>
<th>9</th>
<th>9</th>
<th>3</th>
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<tbody>
<tr>
<td>Weight</td>
<td>19</td>
<td>17</td>
<td>13</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
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<td>+38</td>
<td>+136</td>
<td>+13</td>
<td>+63</td>
<td>+45</td>
<td>+9</td>
</tr>
<tr>
<td>Next &gt; or = integer of 11</td>
<td>308</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Check-digit 308 - 304 = 4

TIN 281-993-4
The one problem with the use of modulus 11, however, is that the check digits generated will range from 0 to 10. Since 10 is two digits long, an approach needs to be devised which keeps the check digit to the 1 character length.

One option is to eliminate the use of any number which would generate 10 as the check digit but it significantly reduces the total number of TINs that a given number of code digits would otherwise provide. Another option is to replace the 10 with an alphabetic character. This preserves the useable number range but causes some confusion where alphabetic characters are somewhat similar such as is the case with the letter "I" in upper case and the letter "l" in lower case.

Assignment of TINs

As the Government agency most concerned with the identification of taxpayers, the tax administration should take the lead in this effort. As a first step, it needs to determine if the country already uses a numbering system that can be used for the purpose of taxpayer identification. If there is no suitable numbering system in use, or the numbering system is suitable but the issuance of number has not been properly controlled, then the tax administration needs to decide on the suitable structure of a TIN, together with other interested departments.

Concurrently, the national legislature needs to provide the legal framework for the use by taxpayers of TINs in all their dealings with the tax authorities, the customs offices and the banking sector (as it relates to tax matters), and should provide for appropriate penalties for failure to do so. Once the legal basis for the use of TIN’s is established, the tax administration can proceed to assign a TIN to each entity that requires it. Those should include legal and physical persons who are subject to tax, as well as entities who may not be subject to tax but who engage in external trade, i.e. importers and exporters, (including non-governmental aid organizations and diplomatic missions).

A single TIN should be assigned to an enterprise, regardless of how many branches it has in different locations. If, however, for legal reasons it is necessary to treat branches as separate entities, a suffix can be assigned to the TINs of these enterprises to distinguish one unit from another yet enable the tax administration to consolidate all information for audit purposes. The suffix, however, should be for internal use only and should not be part of the TIN nor should it be included in the calculation of the check-digit.

The headquarters of the tax administration will need to decide on the procedures for assignment of TINs. International practice, generally, is to assign the responsibility for assignment of TINs to the local tax offices that are in direct contact with taxpayers.

Although local offices assign the TINs, the headquarters of the tax administration needs to

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16 One former Soviet Republic, with a large refugee population, has issued, with donor assistance, identification numbers to all citizens. The emphasis on public assistance to refugees provided an incentive for multi-registration by many individuals and was combined with lax controls making its use as a TIN highly dubious.
establish a central computer operation to maintain a complete record of all the numbers assigned to taxpayers throughout the country as a backup to the local offices and to ensure that only one local office has issued a number to a given taxpayer.

The headquarters needs to develop instructional guidelines to each local office to ensure that TIN assignment is done uniformly. The instructions should cover the procedures for assisting taxpayers in preparation of application forms, validation of the information on the applications, the processing of application forms, the assignment of numbers, the issuance of letters to taxpayers advising them of the TIN they are assigned as well as procedures on resolution of errors in situations where more than one number has been assigned to a taxpayer or where one TIN has been assigned to more than one taxpayer.

Allocation of numbers to local tax offices can be done in a number of ways, however, the simplest approach is to divide the universe of numbers in proportion to the number of taxpayers in the local offices, and assign a block of numbers to each of the offices. This would give each local office its own batch of numbers that the local office computer can issue to taxpayers. Another approach is for the central computer department to allocate a block of numbers to each local office for its immediate needs and to supply additional blocks as initial blocks of numbers are assigned.

Where local offices do not have access to computers to generate their TINs, a simple manual system can be implemented. The central computer department could generate TIN numbers, in duplicate, on stick-on labels to be used by the local offices. When taxpayers submit their applications one label would be applied to the application as a control, and a second label applied to the TIN certificate to be given to the taxpayer. The completed application, with the TIN stick-on label attached, will need to be sent to the central computer department for input into the central data base.

If the number is computer generated, the computer needs to be programmed to maintain a list of issued numbers to prevent the issuance of the same number to more than one taxpayer. If the assignment of numbers is done manually, then a control system has to be devised and certain minimum documentation presented by taxpayers will need to be validated to ensure that the same number is not issued to more than one taxpayer and to prevent a taxpayer from receiving more than one number. The tax administration will also need to issue certificates that notify taxpayers of the TIN assigned to them, explain the purpose of the number and the legal requirements for its use.

**Role of other Organizations in use of TINs**

Another important aspect of TIN assignment is the relationship between the tax administration and other Government agencies as well as commercial enterprises that have an interest in using TINs. The customs administration should use the same identifier as the tax administration has adopted. It will ensure that traders will be properly identified in their dealings with Customs and their activity in the export/import area can be matched to their VAT or profits tax reporting. Other agencies that often will make use of the tax administration-assigned TIN are Ministries controlling quotas or issuing licenses, providing social security benefits, pension benefits, health insurance or unemployment benefits. Those Ministries, commercial banks, if they collect taxes on behalf of the tax administration, and other financial institutions would need the algorithm for computing the check digit to ensure that their clients’ identification is properly transcribed.

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17 In some countries, such as in the United States, taxpayers are required by law to provide their TIN to their stock brokers to open an account or trade in the market.