Supplement 1:

Requirements and Project Delivery

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Ohio Department of Taxation
Tax Discovery Data Warehouse Replacement RFP TAX21IT01

1   General Scope

1.1 General Scope

The purpose of this RFP is to provide ODT an innovative data warehouse platform to conduct audit and fraud analytics. The current data warehouse platform is approaching end of support. This system identifies approximately 77 million dollars in audit leads per year. Replacing or upgrading the current system with a solution built on a modern scalable foundation while maintaining functionality and performance will provide ODT with an integrated system designed to enable and support business intelligence (BI) activities, especially analytics.

1.2 Overview of the Project

The scope of the project encompasses the following:
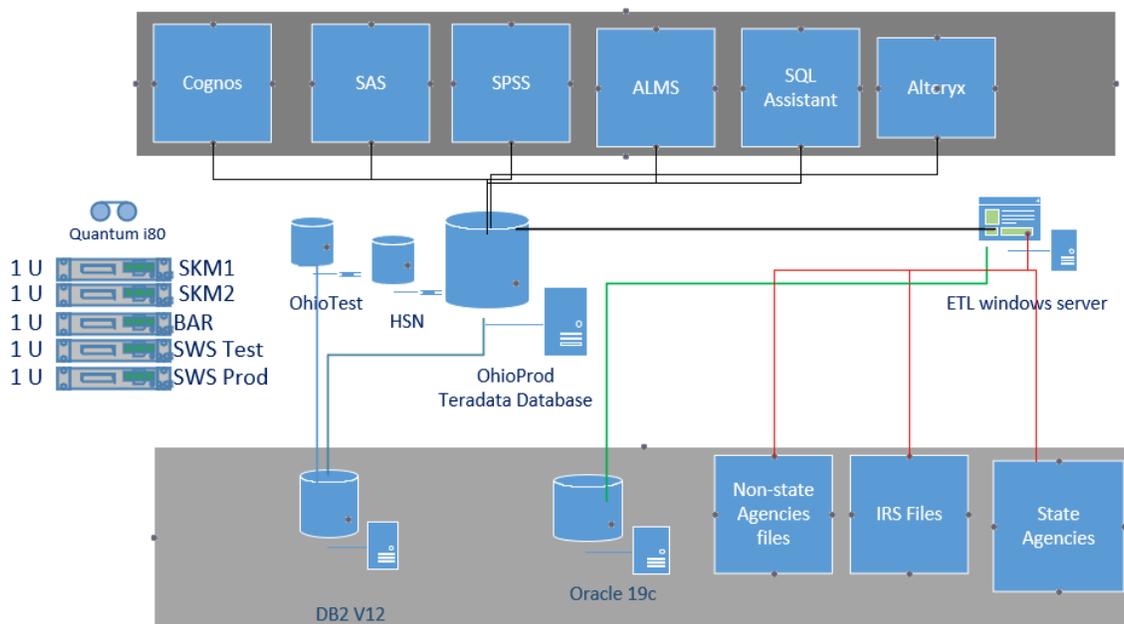
The project is to replace or upgrade the core data warehouse infrastructure hardware and the software suite, port the data and database objects to the new CDW, reuse/replace integrated software, and reestablish connections while maintaining current functionality, performance, security and access auditing.

1.3 Solution Requested

➢ ODT requires a supported, data warehouse system solution for audit selection and discovery of non-filers and under reporters with proven success. The solution should provide the following major functions:

▪ Data Warehouse
  o RDBMS
  o Backup and Recovery

- o Database Monitoring and Alerts
- o Workload manager
- o Business Intelligent, and statistical analysis
- o Extract, Translate and Load (ETL) processes
- o Reporting
- o Security and access Auditing

- ▪ Services
  - o Data Conversion and Migration Services
  - o Documentation
  - o Knowledge transfer
  - o Ongoing support agreement
  - o All development, version control, and other software needed to complete the Project,
  - o All customization and modifications made to the proposed application to meet the requirements as identified in this RFP.

➢ **Hardware and Software Environment Requested.** A description and recommended configuration of the offeror's proposed environment to support the proposed application solution and the proposed solution is requested. All hardware, environmental software and associated maintenance services proposed will be procured via other purchase authority contracts available to ODT. Please describe:
- ▪ All hardware and environmental software required for production, quality assurance, or other Project environments needed to support implementation and ongoing maintenance and training.
- ▪ All software components that ODT does not already have that are necessary for a complete production environment (please refer to Supplement 2 – Legacy Technical Environment).

➢ **Software Requested.** CDW software should include:
- ▪ An upgradeable, supported, integrated Data Warehouse solution. This solution should utilize a data warehouse implemented on a relational database management system and provide the following major functions as delineated below.
- ▪ The data warehouse will support ODT's current reporting services or replace each report with the reporting compatible with the new technology.
- ▪ The solution will include the implementation of extraction, transformation, and load (ETL) software tools, and the associated scripts and batch jobs and their production scheduling to load all the Tax Discovery data warehouse data sources as defined above.
- ▪ All development, version control, and other software needed to complete the Project.
- ▪ All customization and modifications made to the Proposed Tax Discovery CDW to meet the requirements as identified in this RFP.

➢ **Environmental Software.** Offeror's Proposal must include all hardware related system software, database and ETL software required for user playground, development, testing, training, production or other Project environments needed to support implementation and ongoing maintenance and training. Offeror must also include any software components necessary for a complete development, testing and production environment that ODT does not already license or own. Supplement Two of this RFP identifies the ODT Technical Environment and Tools that may be used for the Tax Discovery Project. However, the Contractor will be required to furnish the licenses for all environmental software irrespective of whether ODT already utilizes the software in its existing environment. Both the Contractor and ODT will benefit from any reuse of existing software because ODT will not need to be trained on the software.

- ➢ **Software Licenses**. The Offeror must provide or arrange for perpetual software licenses for all Commercial Software necessary to meet the requirements of this RFP. For the Tax Discovery Tax application, the State requires an agency license. For all other Commercial Software, the State requires a license that provides adequate usage rights to meet the State's current need, as identified elsewhere in this RFP and as disclosed in the offeror's Cost Summary. An agency license means that all ODT's employees with a need to access and use the software may do so. It also means that all third parties involved in related activities, such as ODT's contractors and the Attorney General staff involved in collection activities, also may access and use the software as necessary to support their activities on behalf of ODT. An agency license also gives ODT the right to copy the Tax Discovery application and run and use multiple instances of it, for the above purposes, if reasonably necessary to facilitate the authorized use of it, provided ODT owns or controls the computers on which software is installed. The license fees for this agency license will be included as a result of the benefits realized under this RFP and will not require later upgrades that entail additional license fees based on growth in external factors including but not limited to number of users, number of processors, amount of storage, and revenue earned and taxes collected. ODT may also copy the software for use on computers owned and controlled by third parties, if the purpose of doing so is to facilitate disaster recovery, emergency needs, including testing and training for such purposes, and to permit a third-party to host the software on behalf of ODT in an outsourcing arrangement. This agency license also gives ODT the right to provide the authorized individuals described above access to the Key software remotely through a browser or client software and an Internet or similar connection for all uses and purposes identified above. This remote access includes use by taxpayers for all purposes related to Ohio tax filing, payment, and compliance.

- ➢ **Services Requested.**
  - ▪ Configuration, customization and implementation of all functions of the proposed solution for the state's CDW system and ODT functions related to the administration of audit leads and fraud models. (including ETL, Business Reporting, applications, backup and recovery, database maintenance, performance reporting and usage audit reporting.)
  - ▪ Installation, configuration and implementation of all hardware and environmental software necessary to implement the proposed application.
  - ▪ Software maintenance agreements for all proposed application software in addition to what ODT currently owns and related customization that provide for upgrades, fixes to the base application software (as required), and support. Offerors or their third-party provider must agree to support any additional proposed application for a minimum of seven years and must provide a fixed price for each year of the seven years as part of their Proposal.

- ➢ **Contractor Responsibilities and Deliverables:**

  - ▪ **Project Management**: The Contractor must directly manage all activities of the Project and provide significant guidance to ODT Project management in planning, organizing, and directing the activities of ODT, Contractor and subcontractor project staff.

  - ▪ **Technical Environment Design:** The Contractor must work closely with the ODT Technical Manager and technical staff to plan, design and document all technical environments needed for the Project (including all development, and production environments and related network configuration)

- **Technical Environment Setup and Maintenance:** The Contractor must work closely with ODT Technical Manager and technical staff to setup and maintain all technical environments used during the course of the Project.

- **Performance Testing and System Tuning:** The Contractor must conduct performance testing and system tuning for the installed configuration. These tasks must be coordinated and performed with ODT system programmers, database administrators, and other technical staff. ODT recognizes that performance testing and tuning activities may be necessary at several stages in the process. For example, tuning could take place after the software installation, before production migration and during initial production operations. If modifications are made to the application software to meet ODT's unique requirements, it is expected that the Contractor must review and recommend adjustments to the database configuration to ensure acceptable performance.

- **Hardware, Software, System Development, Customization, and Implementation:** As a part of the Tax Discovery Project, ODT will require hardware and system software as follows:
    - Hardware Installation: The Contractor must install, configure, and test the servers, server peripherals, operating software, utilities, and system management software.
    - Application server(s) (if applicable).
    - Database server hardware and RDBMS software configuration parameters, database object definitions, database backup and recovery and associated tailoring, performance and alerts monitoring, object change management, software upgrade and fix management, and other tailoring requirements to support the application and system software.
    - Server peripherals (e.g., disk drives, printers, tape backup units, uninterruptible power supplies, etc.).
    - All operating system software and utilities necessary for the operation of the servers.
    - DBA/User Administration tool
    - Any specific software required for the proposed solution necessary for the workstations to access the servers and existing office automation software.
    - Performance monitoring and system management software necessary to monitor, tune, diagnose, and manage system use.

- ODT requires the installation and configuration of all of the system and the Relational Database Management System (RDBMS) and application software. The Contractor will be required to install and configure the hardware, as well. ODT recognizes that the Tax Discovery Project will require software related services, including but not limited to, site specific modifications, automated interface programs and automated ETL scripts and batch jobs. ODT has identified specific tasks and Deliverables associated with those activities:

- **Comprehensive System Documentation:** Application and system software configuration parameters, definitions, LPAR / server layouts, RDBMS and application server instance layouts, hardware requirements, installation procedures, and operations instructions. Installation and Configuration

- **Verification:** After completion of the initial system, application and RDBMS software installation and configuration, the Contractor must verify, with ODT's assistance, that all acquired modules are present and installed; that the system operates in a stable fashion both on-line and off-line, and; that the system can be accessed from ODT's network. The Contractor must conduct walkthroughs and other sessions on system housekeeping, updates, and troubleshooting, as required. If

upgrades are required during the Project, the Contractor will be responsible for coordinating with ODT management and for performing the upgrade.

- **Configured Software:** The Contractor must work closely with ODT Project staff, team members, subject matter experts and technical personnel in meeting ODT process, workflow, and functional requirements via software configuration wherever feasible. The Contractor must demonstrate the configured software as required during the Project so that ODT personnel may review and approve it. Approved configurations must be rigorously unit tested and documented as well.

- **Design and Development of a Reporting Environment:** The Contractor must integrate the new/upgraded CDW with ODT's reporting environment. The data warehouse and reporting database design must be documented to sufficient detail to enable the Taxation staff to develop additional reports after the Contractor's work ends without the assistance of the contractor staff. The Contractor must produce a Dimensional Data Model specifying Dimension and Fact Tables used for data analysis. The reporting environment will be accessed primarily using ODT's existing COGNOS toolset but may also be accessed by other desktop reporting tools in the future. The database must be capable of satisfying, at minimum, all reporting requirements defined in Supplement Two Functional and Technical Requirements. Transaction records must be kept to the level of detail to enable periodic, comparative period, trend, performance based, and other types of reporting. As part of the Contractor's scope of services for this Deliverable, the Contractor must provide packaged or custom software or properly configured standard utilities which perform recurring extracts and updates to any reporting environment that is outside the application's data warehouse

- **Extraction, Transform, and Load Data:** ETL processes must be developed to replacer/reuse extract data from STARS and other Legacy operational systems and from external data sources such as the IRS to populate and maintain the Tax Discovery Data Warehouse. The Contractor must produce a comprehensive ETL plan. This plan must include:
  o All destination files and tables to be built in the new system,
  o All data sources from which data is to be extracted,
  o A complete definition of how the source data must be transformed before loading into the production database,
  o A breakdown of all load processes required for the warehouse,
  o The scheduling requirements of the ETL processes,
  o A definition of ETL processes that can be parallelized and other efficiencies that can be exploited,
  o A strategy for performance testing and tuning the ETL processes,
  o Refresh methods and frequency options and recommendations,
  o Tools and other automated programming that will be used to significantly reduce data conversion labor,
  o Roles and responsibilities and timing requirements for the ETL effort, and
  o As part of its data extraction, transformation and load solution, the Contractor must consider using ODT's existing ETL toolset. Please refer to Supplement Two for a complete description of ODT's existing ETL tools.

- **ETL Scripts, Programs, and Schedules**: Based on the ETL Plan, the Contractor must create and test automated ETL scripts and programs to populate the data warehouse. This Deliverable must include:
  o Developing ETL Script specifications,

- o Coding and unit and integration testing of the ETL scripts and programs, and
- o ODT and the Contractor must jointly develop test scenarios and conduct the acceptance testing.

- ▪ **Running and Scheduling ETL Scripts:** The Contractor must run the initial ETL conversion scripts and programs and assist ODT with the verification of the converted data in the production environment. The Contractor must also provide ODT the scheduling requirements of the ETL script jobs so that ODT can define the scheduling within the Production scheduler (IBM Workload Scheduler). ODT will furnish the required format for submitting the scheduling requests.

- ▪ **Training and Knowledge Transfer:** ODT staff requiring training will be comprised of System Administrators, Help Desk staff, Database Administration staff, Operations Support personnel, Network technicians, Report Developers, and Data Scientist. The proposed training solution must serve the needs of this diverse group and provide training appropriate for each constituency. The Contractor must provide four categories of training including:
  - o Project Team Training,
  - o User Training to support implementation and ongoing Tax Discovery needs, including the special needs of management and reporting for select staff,
  - o Technical and Operations personnel training to support implementation, and
  - o Deeper knowledge transfer to a core group of functional, administrative, programming, and other technical and operations personnel to support independent operations capability when the Contractor departs. After the Contractor departs, ODT staff must be able to continue to completely support the entire CDW environment including supporting, maintain and update the data warehouse with new data sources or updates to existing source, and create new Tax Discovery programs and reports.
  - o The training must cover:
    - ▪ System architecture, navigation and functionality,
    - ▪ The Contractor's basic strategy for meeting ODT requirements,
    - ▪ Configurable components and system options,
    - ▪ Security, system options available,
    - ▪ Logical and Physical Data Models of all Database Tables changes (if applicable), and
    - ▪ Other topics useful in orienting the Project team to the software.
      - The software configuration,
      - Organization of software libraries,
      - System operation procedures for use during the Project,
      - System administration responsibilities, and
      - RDMS and operation system housekeeping and
  - o Technical and Operations Personnel Training: The Contractor must supply classroom and substantial hands-on training to ensure that ODT personnel have the necessary skills to operate and maintain the system during the post implementation period. It is assumed that ODT personnel will perform all day-to-day database operations and assist Contract with system administrative functions as set up in the on-going service agreement when live operations commence. Such training must include:
    - ▪ Systems operations including system startup, backup and recovery, nightly batch operations, running of ETL refresh and reporting jobs, and any other tasks necessary to operate the system.
    - ▪ Training on any components of the operating environment that are new to ODT
    - ▪ Training for ODT programming staff on Contractor development tools is also required.

- o **Knowledge Transfer**: The Contractor must provide a knowledge transfer approach that will ensure ODT has a "critical mass" of knowledgeable users (experts), system administrators, database administrators, Data Scientist and other technical personnel sufficient to operate and maintain the system independently. Key measurement of success in this area will be the acquisition of skills via ODT participation in producing key functional and technical deliverables, including software modifications, under the supervision and instruction of experienced Contractor personnel.

- **Documentation:** The Contractor must develop and provide to the State all system documentation. The Contractor must maintain this documentation to reflect changes made throughout the Project. Final updates of the documentation must be provided before final acceptance of the CDW solution. All documentation must be available in printable electronic form (in a format acceptable to ODT). As part of this effort, the Contractor must explain and pursue appropriate options for providing the documentation on-line. The documentation must include at least the following:
  - o Detailed Environment diagrams
  - o Security Administrators Guide
  - o Customized User, Technical, and Operations Documentation
  - o User Documentation:
  - o Operations and Systems Administration Documentation
  - o Documentation of All Customization/Configuration Parameters
  - o Workstation Installation Procedures and Automated Installation Tools
  - o Workflow Administration Guide

- **System Implementation** ODT requires an extensive and carefully structured approach to the implementation of the CDW. This includes the organization and execution of cutover activities necessary to transition operations to the new system. The Contractor must provide support throughout the entire implementation period. More specifically, ODT is requesting the following.
  - o Implementation Plan: The Contractor must produce an Implementation Plan. The plan must detail the approach for coordinating the following:
    - Risk assessment and mitigations,
    - Final Data Load and ETL activities,
    - Technical preparation and system changeover activities,
    - Development of an implementation activities check list,
    - Staffing requirements, by role and responsibilities for all implementation activities,
    - Implementation schedule,
    - The process for developing a contingency plan for identifying, communicating, resolving risks and maintaining then current production capability if the implementation is delayed.
  - o Implementation Assistance: The Contractor must provide implementation assistance to ODT personnel assigned to this task.
  - o Performance Requirements: The following performance requirements must be met to fulfill the Implementation Deliverable:
    - Response Time: The Data Warehouse system must provide measured internal transaction response time whereby 95% of all operations' elapsed time is the same or less than ODT current like report/ETL process/transaction. This parameter must be met for 20 consecutive business days (Monday through Friday, except for State identified holidays).
    - Application Availability: For 20 consecutive business days after the implementation of each phase, the system must have no more than 4 hours of unscheduled down

time during the planned availability of 7:00 a.m. until 6:00 p.m. on business days (Monday through Friday, except for State identified holidays).

- ▪ Application Batch Consistent Operation: All production batch jobs and scripts including but not limited to ETL / data refresh and update operations and database backup and reorganization activities must have completed successfully and all runtime errors corrected for 20 consecutive business days. During that same 20 consecutive business day period 95% of all batch processes must have completed without runtime errors.
- ▪ Post Implementation and Long-term Support
  - o Production and Post Implementation Support: The Contractor must provide production support throughout the Project and post implementation support for a period of two weeks after the last implementation phase. This post implementation support must consist of technical, functional, and operational support and must be provided by skilled Contractor personnel who have become familiar with ODT over the course of the implementation effort.
  - o Hardware Maintenance and Support: The Contractor must provide hardware maintenance and support for the hardware included in the solution. In addition, the Contractor must continue offering product maintenance and support for the hardware included in the CDW solution for a minimum of three years after the completion.
  - o Software Maintenance and Support: The Contractor must provide software maintenance and product support as it relates to the proposed and implemented software products, modules and tools. In addition the Contractor must agree to continue offering product maintenance and support for the CDW application software for a minimum of five years after the State takes ownership.
  - o Offeror will provide a service support levels available with a detailed description of services offered, response time and price.
- ▪

1.4 Timing and Phasing Requirements

Contractor is responsible for composing a project plan that meets the Sept 2021 deadline. This target includes all hardware, software, data, database objects, ETL processes, Cognos Reports, SPSS Models, and ALMS interface in production environment. The Contractor will provide a project plan with dates, milestones and responsibilities.

ODT utilizes an Agile methodology for most projects. We are open to other methodologies as well. During the design phase will agree on a methodology that includes:
  - o Communication Plan
  - o Testing Plan
  - o Change Management
  - o Issue/Defect Management
  - o Retrospective (Lessons Learned) after each phase

1.5 Current System Overview

1.5.1 Yearly Volumes

The Contractor will be required to provide infrastructure to support these volumes in supplement 2

1.5.2 Interfaces

ODT's current Tax Discovery Warehouse system has many interfaces that will need to be incorporated in the Contractor's solution. These include (but are not limited to):

1. **Internal Systems Consumers**
   a. **ALMS** – Audit Leads IBM WebSphere application
   b. **TTCS** – Tax Discovery Lead Program portal
   c. **Tax Analysts** – uses SAS
   d. **Business Reporting -** compliance reporting for induvial and business taxes utilizing Cognos
   e. **Ohio Tax Investigative System (OTIS) -** Tableau dashboard that ingests Personal Income Tax data daily for Db2 zos V12

   f. **Fraud –** SPSS model prediction techniques, and analytical model construction.

   g. **IOP –** Innovate Ohio Platform – State Reopening/Recovery
   h. **T610 -** processes BMV data to Oracle
   i. Alteryx consumes Teradata data for fuzzy matching processes

2. **Internal Systems Contributor**
   a. **Personal Income Tax** – receive twice a week refreshes from DB2 zos V12
   b. **School District** – receive twice a week refreshes from DB2 zos V12
   c. **Assessment** – receive twice a week refreshes from DB2 zos V12
   d. **PSRM** – Business Taxes - receive once a week complete and delta refreshes from Oracle 12c and 19c

3. **Online portals**
   a. **No internet accesses**
4. **Ohio Agencies (File Exchange – Flat, CSV, XML . . .)**
   a. **Department of Public Safety –** vehicle exemption and casual sales
   b. **Ohio Bureau of Motor Vehicle –** Driver License, vehicle title and registration
5. **Non-Agency Systems (File Exchange – Flat, CSV, XML . . .)**
   a. **Internal Revenue System** – individual and business File exchange
   b. **National Technology Services** – Death records
   c. **IP2Location** – geolocation information
   d. **U.S. Customs –** quarterly custom import information

2   Functional Requirements

This section enumerates many high-level functional requirements as determined by ODT for the purposes of this RFP. Requirements may be added or changed during project sprints as necessary to reflect the functionality of the Contractor's solution and ODT's changing needs. The Offeror must provide a response for each section with how the proposed solution meets, does not meet, or exceeds the existing or desired functionality. Offerors are encouraged to illustrate the rationale, merits, completeness, innovation, capabilities and limitations of all solution components including technical, software elements, process elements, services, integrations and other operating considerations as part of their narrative responses to this RFP. The Offeror is further encouraged to provide screen captures, diagrams, graphics or other information of relevant elements of their solution to illustrate the degree of compliance with requirements wherever possible. Simply repeating the requirement and agreeing to comply is an unacceptable response and may cause the proposal to be rejected.

Functionality is divided into two separate modules:

➢ **Data Warehouse**

➢ **Services**

2.1 Data Warehouse

ODT requires a SQL relational database management system (RDBMS) specializing in high speed data warehouse queries and features. The database software must be a currently supported version that's end of regular support date is at least two year into the future.

2.1.1 RDBMS

As part of the general RDBMS overview, please respond to the following questions:

- Provide the following information related to the proposed relational database management system:
  - o   Name;
  - o   Licensing company;
  - o   Currently supported Version / Release number;

- Describe the proposed Data Warehouse's Gartner Magic Quadrant product score for Traditional Data Warehouse Use Case for the past three years.

  Response:

- How many states have implemented and continue to license your product(s) proposed as part of the solution?

  Response:

- Please describe the features of the DBMS that is included in the solution.

    Response:

- Describe the RDBM's unique architecture to support large databases (terabytes) and large numbers of concurrent end-users performing complex analysis. For example, High-speed query processing using symmetric multiprocessors (SMP), massively parallel processors (MPP), and/or clustered multiprocessors (NUMA).

  Response:

- Explain any redesign required to exploit the new architectures capabilities if different from ODT's current use of massively parallel processing (MPP) database technology.

  Response:

- Please provide details about any features that reduce the resource requirements for DBMS maintenance by DBAs and include at a minimum the following:

  o DBMS software management (receiving, installing and tracking inventory of fixes and upgrades) and configuration tools (setup and configuration tools)

  o Automated utility generation and scheduling (or eliminate the need for certain utilities)

  o Automated object management including object change management facilities

  o Automated space management facilities that insulate DBAs from the physical object and environment management.

  o Managing optimizer hints, plans and parallelism

  Response:

- Design and system flow diagrams must be included. System performance statistics should also be provided for a typical configuration. Please indicate how the solution is linearly scalable with increased usage demands. Also indicate what redundancies are built into the solution to make it fault tolerant.

  Response:

- What software products, tools, and modules/options of those products and tools are needed to meet the listed CDW requirements? Indicate which types of requirements are met by each product and module listed.

  Response:

- What warehouse and processing functions are available online / real-time and are available as batch processes?

  Response:

- Describe how the proposed solution meets auditing and security requirements listed in this RFP. How does the solution track not only what "transaction" a user issues but also what essential logical keys the user entered to retrieve specific taxpayer information (such as SSN or FEIN)? How does your solution employ external security software?

  Response:

- Taxation would prefer that all requirements be met through product configuration and parameter changes and not through user/site specific changes to the program code. Does your solution / COTS product support user/site specific changes to the actual program code? If so, are the changes performed through standard fixed exit points? How are COTS fixes and upgrades applied without regressing user / site specific changes to the code? List the software languages that can be used for site specific code that would be maintained by ODT. What percentage of Taxation requirements are fulfilled through the coding of site-specific code?

    Response:

- Describe the database SQL interface tools. Include in the description an explanation of the following:

    1. Interface type (e.g. Browser or GUI);

    2. Online help facilities; and

    3. Technical documentation available.

        Response:

- Describe how the proposed solution provides accessibility to persons with disabilities in compliance with:

    1. The Final Standard for Electronic and Information Technology Accessibility, 36 C.F.R. §1194, and

    2. The Final Federal Acquisition Rule for Implementing Section 508 of the Federal Rehabilitation Act, 48 CFR Parts 2, 7, 10, 11, 12, and 39.

        Response:

- Describe how the proposed solution should be implemented to ensure good response time for the following capabilities:

    o Lead Generation and Scoring

    o Ad Hoc Queries to the Database

    o Management Reports of Tax Discovery Status such as Lead Reliability, Agent Production, Cash Revenue and Assessment Results, etc.

    o uncovering hidden patterns, prediction techniques, and analytical model construction.

        Response:

- What capabilities does the proposed solution have to better facilitate good query response time when the query does not utilize a corresponding physical search index for query optimization (also referred to as full tablespace or table scans)? Please describe the hardware / software architecture that supports these capabilities and provide sample response time statistics for full table scan queries on the proposed hardware.

        Response:

- Provide the performance matrix for the ETL process in Supplement 2.

        Response:

- Please furnish the proposed licensing and maintenance and support contracts, schedules, and supplements for the CDW application software and any software bundled into / with the application as delineated given in your RFP response.
    Response:

2.1.2 Backup and Recovery

- Include a backup and recovery and remote site disaster recovery strategy in your proposal that protects all data and programs related to this warehouse solution. Include hardware, software, storage, tape library, if appropriate.

    Response:
- ODT requires a disaster recover strategy that will have the system available within two weeks of a major outage. We would also like this environment to include all data loaded up to 1 week prior to the failure. Explain how the proposed solution will meet these requirements in all platforms that you support. Note: The state also offers disaster recovery for On-Premise distributed systems.
    Response:

- Describe the DBMS's backups use in refreshing data in different environments.
    Response:

    - Describe the automatic recovery capabilities native to the DBMS.
    Response:

    - Describe the automation provided in the Backup and Recovery interface tool(s).
    Response:

2.1.3 Database Monitoring and Alerts

- Describe automation tools used to update, provide alerts, and assist with management of environment infrastructure. Indicate whether Taxation's existing toolset can provide the automation tools to manage the environment or whether new tools need to be purchased. Be sure to include any additional tools in the required software lists and the cost structure.

    Response:
- Describe the proposal's automation GUI or Web tools used to monitor:
    - System Health
    - queries in real time and historical (performance, respective user IDs, SQL involved)
    - Trend workloads
    - Manage Stats
    - Manage Locks
    Response:

2.1.4 Workload Manager

    - Describe the workload management integrated in the database, or other technologies that control the following:

    - Obtain required performance SLAs
    - Stabilizes response times of important work

- o Prioritizes work based on business operations
- o Manages system resources by type of work or application
- o Manages resource use (CPU, I/O, number of rows)

    Response:

2.1.5 Business Intelligence and Statistical Analysis

- Describe the solution's in-database predictive analytics capabilities: decision tree model generation, generalized linear model generation (including logistic regression and linear regression), naïve Bayesian model generation, naïve Bayes' text classifier, random forest model generation, support vector machines.
  Response:

- Describe the solution's in-database ability to execute analytical models through Python scripts.

    Response:

2.1.6 Extract, Translate and Load (ETL)

- How is the data within the CDW Management and Processing System established, updated and refreshed? Describe methods and ETL tools utilized to populate the data repository / warehouse. Indicate whether Taxation's existing toolset can provide the ETL tools to manage the environment or whether new tools need to be purchased. Be sure to include any additional tools in the required software lists and the cost structure. Please indicate the file formats (comma delimited, fixed format, XML, etc.) and system types (various DBMS and messaging systems) that are compatible with the ETL tools. How do the ETL tools utilize parallel processing to speed the processes required to load and / or refresh data? Please provide load / update statistics and projections based upon the IRS data volumes and tax type data volumes provided in Supplement 2.

    Response:

- Describe in detail the processes required to implement high speed data extracts interface(s) with Oracle 19c database on aix.

    Response:

- Describe how the proposed solution implements connectivity between the data warehouse and the mainframe. Please provide load and response statistics based upon the data volumes provided in Supplement 2.

    Response:

- Indicate whether the solution will reuse, translate or reconstruct the current ETL processes that utilize Teradata's Parallel Transport, bteq and bat scripts. Include costs, implementation plan and benefits to the response.

    Response:

- Because of availability constraints it is unlikely that Taxation will be able to replace the entire warehouse as part of update refresh cycles. Please describe the refresh process in detail. What facilities does your ETL and

application possess to enable updating the warehouse with new data and still allow concurrent user access? What recovery and restart capabilities do the ETL components possess to ensure that failed load processes can resume processing at the point of failure rather than force restart from the beginning? The offeror must indicate whether or not they recommend using the existing ODT toolset and the reasons for that recommendation.

> **Response:**

- What recovery and restart capabilities do the ETL components possess to ensure that failed load processes can resume processing at the point of failure rather than force restart from the beginning?

> **Response:**

2.1.7 Reporting

- Describe system performance reporting capabilities inherit in the reporting tool and database.

  Response:

- Describe system audit reporting capabilities inherit in the reporting tool and database.

  Response:

- Indicate required changes to the current COGNOS reports to utilize the new warehouse solution while maintaining each report high level of performance. Provide a plan to benchmark, verify and resolve any degrading in Cognos Reports' performance.

  Response:

2.2 Services

- Describe the technical operational requirements of the solution including ongoing systems support. Include backup, recovery, reporting and maintenance operations.

  > **Response:**

2.2.1 Data Conversion and Migration Services

- Describe, in detail, the method and technology proposed to directly port or ETL 100% of the current Tax Discovery warehouse data into the new system? Include costs, implementation plan and benefits to the response.

  Response:

- Describe, in detail, the method and technology proposed to migrate all database structures, including tables, indexes, security, stored procedures, views, UDF and modules of the current Tax Discovery warehouse into the new system? Include costs, implementation plan and benefits to the response.

  Response:

2.2.2 Documentation & Knowledge transfer

- The Contractor must train ODT on the proposed backup, recovery, and disaster recovery strategy.
    Response:

2.2.3 Ongoing support agreement

- Describe how your solution is based on a COTS (Commercial off the Shelf) software product. Indicate the marketing/support history of the COTS product – product introduction, number and frequency of upgrades/enhancements, description of major enhancements, etc. How many states have implemented and continue to license your product(s) proposed as part of the solution?

    Please indicate the current version of the base software and options and the release level implemented in your client states. Include the date the release level became generally available.

    If your solution is not a COTS software product, how do you propose to support and enhance the solution to fix bugs, support new operating system and DBMS releases, new technology, etc. How long does you company commit to providing the availability of such support? Indicate what levels of support will be provided and the annual costs of that support.

    Please furnish the proposed licensing and maintenance and support contracts, schedules, and supplements for the CDW software and any software bundled into / with the application as delineated given in your RFP response.

    Response:

- Describe operating system and database security hardening offerings provided by the Bidder or third party to meet the IRS SCSEMs. How many sites, with your proposed solution, have the Offeror performed and met the IRS hardening requirements in an on-site audit?

    Response:

2.3 Specific Features – Matrix

In addition to the functionality requested above, ODT has identified the following important or desired features. Please indicate the extent to which, and how, if applicable, each feature may be achieved through the proposed software.

RFP Ref. Loc. – This field must be completed with the section, page, and paragraph numbers of the proposal to reference exactly where the proposal documents states how the Offeror's solution will meet the requirement. If this field is left blank, the evaluation committee has the right to assume that the requirement is not met.

Response Code – The Offeror shall provide responses using the functional requirements forms provided. For each requirement the Offeror shall use only one of the following response codes:

- **F** – Requirement will be fully met with the delivered software (without configuration, extension, or modification).

- **C** – Requirement will be met via configuration.

- **E** – Requirement will be met via code extensions (without changing base application code).

- **M** – Requirement will be met via modification of the solution.

- **N** – Requirement will not be met.

Comments – For solutions that provide upgrade options in the future, all responses indicating that a modification is required ('M'). The offeror should also indicate whether the software provider is willing to incorporate the change into future releases as part of the standard solution.

Feature Number	Description	Offeror Response
DB-01	Support of open systems standards, e.g., SQL, ODBC, OLE DB.	
DB-02	Support for physical partitioning of data.	
DB-03	Support for compression of data.	
DB-04	Maintains data integrity	
DB-05	Aggregate awareness	
DB-06	Support for star join and multidimensional extensions to SQL to support OLAP calculations, variances, moving averages, etc.	
DB-07	Supported by large number of third-party tools.	
DB-08	Data validation automation	
DB-09	Supports SQL, Table Functions, Stored Procedures	
DB-10	Support XML data types	
DB-11	Provide fuzzy matching/soundx functionality	
DB-12	In database Data Lineage and dictionary capabilities	
DB-13	Cluster analysis in database: useful for analysis when there is no specified target field.	
DB-14	PIVOT and UNPIVOT: supports syntax to turn rows into columns and vice	

	versa. Along with supports aggregation of pivot columns.	
DB-15	Table row size maximum larger than 64000	
DB-16	Exploit complex indexes	
DB-17	Provide Data encryption without impact to applications. ETL, or sql	
SP-01	Provide periodical system review and life cycle meetings	
ETL-01	Support extract 93,000 bytes XML from oracle to the new data warehouse	
ETL-02	Support of LOB and XML shredding	
ETL-03	drag-and-drop gui interface	
ETL-04	Integrated scheduling with IBM Workload Scheduler	
ETL-05	wide range of built-in bi-directional connectors for both modern and conventional data sources.	
ETL-07	Ease of use/coding of high-speed utilities	
ETL-08	Simple to use built-in data transformations functions	

3   Technical Requirements

This section enumerates many high-level technical requirements as determined by ODT for the purposes of this RFP. Requirements may be added or changed during project sprints as necessary to reflect the functionality of the Contractor's solution and ODT's changing needs. The Offeror must provide a response for each section with how the proposed solution meets, does not meet, or exceeds the existing or desired functionality. Offerors are encouraged to illustrate the rationale, merits, completeness, innovation, capabilities and limitations of all solution components including technical, software elements, process elements, services, integrations and other operating considerations as part of their narrative responses to this RFP. The Offeror is further encouraged to provide screen captures, diagrams, graphics or other information of relevant elements of their solution to illustrate the degree of compliance with requirements wherever possible. Simply repeating the requirement and agreeing to comply is an unacceptable response and may cause the proposal to be rejected.

3.1 General

3.1.1 Describe the platforms that the proposed solution supports.

    Response:

3.1.2 Describe the proposed application architecture. Include in the description an explanation of the application tiers and how they are separated.

    Response:

3.1.3 List certifications the offeror has relevant to the software lifecycle (e.g. CMMI, ISO).

    Response:

3.1.4 Provide details on the installation requirements and project schedule.

    Response:

3.1.5 Describe any data conversion requirements. The offeror is responsible for developing any data conversion programs. What the acceptable level of conversion? How many records are to be converted, who is responsible for entering any records that do not convert properly, etc.

    Response:

3.2 Hardware

3.2.1 Provide a detailed description of all server/hardware and any network infrastructure requirements necessary for the proposed solution in production, and development environments, etc.

    Response:

3.2.2 Provide technical information about proposed solution, including technical specifications of any proposed equipment or services.

    Response:

3.2.3 Explain the methods used to maintain high availability, please provide any available statistics to prove methods described have been successful at other installations.

    Response:

3.3 Software

3.3.1 List any tools included to customize and/or enhance the use of the proposed solution.

> **Response:**

3.3.2 List any software, including manufacturer, functional capabilities, warranties, support levels, and documentation (any applicable license agreements and documents reflecting offeror's authority to include such software).

> **Response:**

3.4 Development

3.4.1 List all environmental requirements for the proposed solution. (i.e. separate sandbox, development, training, testing, QA, and production region needs).

> **Response:**

3.4.2 List and describe all value-added services offered that are not included in the response.

> **Response:**

3.4.3 Describe additional functionalities not listed within the core functions of the proposed solution but available, nevertheless.

> **Response:**

3.4.4 What is the process and timeframes for notifying the state of available patches and updates affecting security flaws?

> **Response:**

3.4.5 Explain how software upgrades and patches to correct defects to keep the solution software current with new releases of operating software and relational database management system software are communicated.

> **Response:**

3.4.6 Describe the application's architecture in terms of functional partitioning of components (e.g. web, database, application).

> **Response:**

3.5 Production Support

3.5.1 Describe any support services including hardware and software maintenance – include an explanation of any proposed support services including performance guarantees. Identify all proposed maintenance, including a detailed explanation of response times, backup procedures and how the system will be maintained. Include any sample forms or agreements.

Response:

3.6 Security

3.6.1 Describe how the proposed solution will adhere to all Federal security standards as prescribed by the IRS in Publication 1075 and other IRS safeguarding requirements as it pertains to federal tax information to protect the privacy and confidentiality of that information.

Response:

3.6.2 Describe the proposed solution's security architecture design as it relates to maintaining the system's quality attributes such as identification, authentication, authorization, confidentiality, integrity, and non-repudiation.

Response:

3.6.3 Describe any security configuration standards (e.g. DISA STIG, IRS SCSEM, PCIDSS) for supporting platforms (e.g. O/S, database, web) on which the application has been confirmed to run.

Response:

3.6.4 Describe how security configuration parameters, options, and functions for applications and supporting platforms will be conveyed.

Response:

3.6.5 Describe how the proposed solution will comply with Payment Card Industry Data Security Standard (PCI DSS, if applicable).

Response:

3.6.6 Describe how the proposed solution supports public key infrastructure (PKI).

Response:

3.6.7 Describe how the proposed solution support two-way authentication of client and server for transport security layer (TLS) 1.2 or greater.

Response:

3.6.8   Describe role-based access and authentication controls of the database.

   Response:

3.6.9   Describe how the proposed solution will provide a security administrator function that allows for separate controls for view, add, change, inactivate update, approve, and query access purposes.

   Response:

3.6.10   Describe how the proposed solution will ensure all data will be encrypted at rest and in transit (network, tape, etc..)

   Response:

3.6.11   Describe how the proposed solution will provide the ability to maintain and view an audit trail containing browse history with time and date Estamp, user ID, and record browsed.

   Response:

3.6.12   Describe how the proposed solution will include a System Security Plan based on NIST SP 800-53 (current and future versions) SP 800-122 describing the security controls of the solution. The System Security Plan must be updated annually or when major changes occur within the solution during the life of the Contractor relationship.

   Response:

3.6.13   Describe how the proposed solution will log all access to confidential personal information in compliance with ORC 1347.15.

   Response:

3.6.14   List all third-party software used in the proposed application, including libraries, frameworks, components, and other products; and whether they are commercial, free, open-source, or closed-source.

   Response:

3.6.15   Describe security compliance required of third-party Contractors whose products are incorporated into the proposed application.

   Response:

3.6.16   Describe physical protection of source code and computer facilities, including disaster recovery.

   Response:

3.6.17 Describe encryption implemented in the solution and encryption standards employed.

   Response:

3.6.18 Describe methods for protecting private and sensitive data fields (e.g. SSN, FTI, STI, other PII), including masking, tokenization, or other methods.

Response:

3.6.19 Describe your process for identifying, labeling and isolating FTI.

Response:

3.6.20 Describe how auditable events are generated, captured, and retained as well as the audit record content.

Response:

3.6.21 Describe security capabilities of the application for output handling and output retention.

Response:

3.6.22 Describe the use of any secure coding guidelines that are followed in software development.

Response:

3.6.23 Describe the process for security assessments; how they are conducted and in what timeframes?

Response:

3.6.24 Describe safeguards and practices in place to screen employees and contractors.

Response:

3.6.25 Describe code analysis practices in place to ensure security flaws are prevented or removed from software

Response:

3.6.26 Describe how assessments of vulnerabilities, risks, and threats to applications and supporting platforms are performed.

Response:

3.7 Performance

3.7.1 Describe any performance measures and dashboards presented.

Response:

3.7.2 List and describe all value-added services offered that are not included in the response.

Response:

3.7.3   Describe acceptable warranty performance specifications and warranty performance reporting to include number of calls, number and type of repairs and changes, etc.

   Response:

3.7.4   Describe service level agreements (SLA) with performance commitments. If appropriate, include industry standard response times and performance requirements for normal business processing and/or critical business processing as appropriate.

   Response:

3.8 Scalability

3.8.1   Explain how the proposed system will address the following performance, scalability, and availability requirements:

- Support 225 total users initially and is planning on adding 50 to 100 in the next year.
- Response time whereby 95% of all operations' elapsed time is the same or less than ODT current like report/ETL process/transaction. This parameter must be met for 20 consecutive business days (Monday through Friday, except for State identified holidays).
- Provide Data Warehouse availability for internal use from 6am to 8pm Monday through Friday and from 7am to 12pm on Saturdays.
- ETL and backups done on off hours.
- Query processing is to maintain response time as data volume grows.
- Support 8T of storage with growth of 2T per year (this does not include storage for backups)
- Provide a Quality Assurance (Test) environment that contain 100% of production data and supports production SLAs.

   Response:

3.8.2   Explain if scalability is achieved by other means than a hardware upgrade.

   Response:

4	Service Levels

The Offeror must list all the assumptions made in preparing the Proposal. If any assumption is unacceptable to the State, ODT may at its sole discretion request that the Offeror remove the assumption or choose to reject the Proposal. No assumptions may be included regarding the outcomes of negotiation, terms and conditions, or requirements. Assumptions should be provided as part of the Offeror response as a stand-alone response section that is inclusive of all assumptions with reference(s) to the section(s) of the RFP that the assumption is applicable to. **Offerors should not include assumptions elsewhere in their response.**

4.1 Support Requirements

The Offeror must describe the support required from ODT in addition to ODT's minimum contribution described above. Specifically, the Offeror must address the following:

- Nature and extent of ODT support required in terms of staff roles, percentage of time available, etc.,

- Assistance from ODT staff and the experience and qualification levels required, and

- Other support requirements.

ODT may not be able or willing to provide the additional support the Offeror lists in this part of its Proposal. The Offeror therefore must indicate whether its request for additional support is a requirement for its performance. If any part of the list is a requirement, ODT may reject the Offeror's Proposal, if ODT is unable or unwilling to meet the requirements.

4.2 Pre-Existing Materials

The Offeror must list any Pre-Existing Materials it owns that will be included in a Deliverable if the Offeror wants a proprietary notice on copies that ODT distributes. For example, the Offeror may have standard user interfaces or standard shells that it incorporates in what is otherwise custom software. (See the Ownership of Deliverables section of the General Terms and Conditions.) ODT may reject any Proposal that includes existing materials for a custom solution, if ODT believes that such is not appropriate or desirable for the Project.

4.3 Commercial Materials

The Offeror must list any commercial and proprietary materials that the Offeror will deliver that are easily copied, such as Commercial Software, and in which ODT will have less than full ownership ("Commercial Materials"). Generally, these will be from third parties and readily available in the open market. The Offeror need not list patented parts of equipment, since they are not readily copied. If the Offeror expects ODT to sign a license for the Commercial Material, the Offeror must include the license agreement as an attachment. If ODT finds any provisions of the license agreement objectionable and cannot or does not negotiate an acceptable solution with the licensor, regardless of the reason and in ODT's sole discretion, then the Offeror's Proposal may be rejected. If ODT is not going to sign a license, but there will be limits on ODT's use of the Commercial Materials different from the standard license in the General Terms and Conditions, then the Offeror must detail the unique scope of license here. Unless otherwise provided in this RFP, proposing to use Commercial Materials in a custom solution may be a basis for rejection of the Offeror's Proposal, if ODT, in its sole discretion, believes that such is not appropriate or desirable for the Project. Any deviation from the standard license, warranty, and other terms in Attachment Four also may result in a rejection of the Offeror's Proposal.

If the Offeror proposes a Deliverable that contains Commercial Software or other Commercial Materials with terms that differ from the terms in Attachment Four for Commercial Software and Materials, then those terms must be detailed here, and any proposed separate agreement covering those items must be included in the Offeror's Proposal. This is required even if ODT will not be expected to sign the agreement. Any deviation from the standard terms in Attachment 4 may result in a rejection of the Offeror's Proposal.

4.4 Service Levels

The Service Levels contained herein are default Service Levels for Deliverables issued under this Contract. Both ODT and the Contractor recognize and agree that Service Levels and performance specifications may be added to or adjusted by mutual agreement during the term of the Contract as business, organizational objectives and technological changes permit or require. In addition, where the scope of services of a Deliverable is not applicable, the parties will negotiate in good faith the default SLAs or to make necessary modifications to the SLAs. Such modifications will be placed in the specific Deliverable and be only valid for that Deliverable and not for other work covered by other deliverables.

4.4.1 Monthly Service Level Report

On a State accounting monthly basis, the Contractor will provide a written report (the "Monthly Service Level Report") to ODT which includes the following information: (i) the Contractor's quantitative performance for each Service Level; (ii) each Individual SL GYR State and the Overall SL Score; (iii) the amount of any monthly Performance Credit for each Service Level; (iv) the year-to-date total Performance Credit balance for each Service Level and all the Service Levels; (v) a "Root-Cause Analysis" and corrective action plan with respect to any Service Levels where the Individual SL GYR State was not "Green" during the preceding month; and (vi) trend or statistical analysis with respect to each Service Level as requested by ODT . The Monthly Service Level Report will be due no later than the tenth (10th) accounting day of the following month.

4.4.2 Service Level Review and Continual Improvement

Initial Review: Within three months of Project initiation, the Parties will meet to review the Service Levels and the Contractor's performance and discuss possible modifications to the Service Levels. Any changes to the Service Levels will be only as agreed upon in writing by the Parties.

Ongoing Review: On an ongoing basis, the Parties will meet to review the Service Levels and the Contractor's performance on a mutually agreed to frequency.

4.5 Service Level Commitments – Project Implementation Services

Section	Service Level	SLA or SLO	Support Hours	Required Response	Resolution
1.2.1	Testing Performance - System Test Execution Exit Quality Rate	SLA	-	See specification below	-
1.2.2	Defect Resolution – Priority 1 Defects	SLA	7x24	Every 4 hours until	<= 24 hours
1.2.3	Defect Resolution – Priority 2 Defects	SLA	7x16	Every 8 hours until	<=72 hours
1.2.4	Defect Resolution – Priority 3 Defects	SLO	5x9	Every 24 hours until	<= 7 calendar
1.2.5	Blocking Issues - Identification and	SLA	7x24	Every 2 hours until resolution or agreeable	<=10%
1.2.6	UAT Performance – Regression Defects and Incidents Find/Fix Rate	SLA	-	See specification below	-
1.2.7	Milestone Date Delivery	SLA	-	See specification below	-

Section	Service Level	State Requirements			
		SLA or SLO	Support Hours	Required Response	Resolution
1.2.8	Issue Reporting	SLO	-	See specification	-
1.2.9	Deliverable Acceptance	SLO	-	See specification	-
1.2.10	UAT Process and Environment Support	SLO	7x9	Every 2 hours until completion of testing	-
1.2.11	Development Methodology Compliance – SDLC Compliance	SLA	-	See specification below	-
1.2.12	Project Completion - Defects Detected and Resolved in Production	SLA	-	See specification below	-

Minimum Event Quantity Considerations

During a month where there is not a statistically relevant number of opportunities for the Contractor to demonstrate compliance with a service level due to the low number of events that would comprise compliance with a service level, the Contractor shall not be held responsible for achieving the Service Level from a pure mathematical perspective. For those months where, due to the low number of events, the Contractor is excused from Service Level credits for the effected Service Level, the associated Contractor performance related to those events will roll forward to the subsequent month (or if required months) until such time as the number of events, and the related Contractor performance in addressing those events generate a meaningful number to substantiate the calculation of the Service Level. Below is a clarifying example for the avoidance of doubt:

- The State requires a service level that is contemplated based on the anticipated volume of events to be 90%

- Because of the project phase or activities, there are only three events to be considered in the measurement month

- Two of the events were in complete (100%) compliance with ODT requirements and one of the events was not in compliance with ODT requirements. Therefore, under this scenario the Service Level attainment was 66% of ODT requirements in aggregate.

- Due to the low number of events in the measurement period, the results from previous months will be rolled forward to the point where there are a sufficient number of events to yield a statistically relevant result. The State and the Contractor will mutually agree to the number of events required to produce a statistically relevant result (generally the next month)

- If the following month's performance contains a statistically relevant number of events, or when combined with the prior months would be statistically relevant, any Service Level credit or calculation would apply to the aggregate of all the events in question

4.5.1 Project Performance – Compliance Milestone Date Delivery

Specification: Compliance Milestone Dates

Definition: Amount of committed and accepted Project Milestones achieved on time as per the Project plans.

The Contractor is to produce an overall Project plan inclusive of the milestones, activities and deliverables at the commencement of the Project. A measurement period of 1 calendar month will be established to serve as the basis for the measurement window. The Contractor will count all milestones, activities and deliverables to be completed during that measurement window and their corresponding committed delivery dates. Any date variations (positive or negative) will be recorded upon ODT's acceptance of the deliverable and used in the calculation of this SL.

This SL will commence upon Project initiation and will prevail until Project completion.

Formula:

$$\text{Compliance, Milestone Dates} = \frac{\text{Total Number of Milestones (owned by Contractor) met within the measurement month}}{\text{Total Number of Milestones (owned by Contractor) planned to be met during the measurement month per the agreed upon list of Milestones}} \times 100$$

Measurement Period: Monthly, During Project

Data Source: Weekly Project Report

Frequency of Collection: Weekly

4.5.2 Project Performance – Compliance Issue Reporting

Specification: Compliance Issue Reporting

Definition: The reporting of any issues impacting the Project to ODT for prompt resolution and possible solutions to ODT. The Contractor is to promptly report all issues to the project management and sponsorship personnel within ODT upon detection of an issue that will impact overall Project delivery, Project quality, or overall effectiveness of the Project in its intended production operation mode.

Wherever possible, the Contractor must include recommendations as to work-arounds, remedial actions, impact assessment and potential mitigation strategies that ODT may employ.

This SL will commence upon Project initiation and will prevail until Project completion.

Formula:

 # Project Issues Identified during reporting period
– # Issues not reported during Previous Period Status Reports
– # Issues and Other Unreported Issues that arise or are discovered subsequent to reporting dates

| Compliance, Issue Reporting | = | $\dfrac{}{\text{\# Project Issues Identified during reporting period}}$ | X 100 |

Measurement Period: Monthly, During Project

Data Source: Weekly Project Report

Frequency of Collection: Weekly

4.5.3 Project Performance - Deliverable Acceptance

Specification: Deliverable Acceptance

Definition: The State's ability to accept the Contractor deliverables based on submitted quality and in keeping with initially defined standards and content for the Contractor deliverables.

The Contractor must provide deliverables to ODT in keeping with agreed levels of completeness, content quality, content topic coverage and otherwise achieve the agreed purpose of the deliverable between ODT and the Contractor. For the avoidance of doubt, the deliverables contained in this RFP as they pertain to the Data Capture Implementation Project delivery concepts associated with structured software development will represent the minimum set of expected deliverables.

Notwithstanding ODT review and approval cycles, this SL will commence upon the delivery of a final deliverable for acceptance to ODT, and any work/re-work to the final deliverable in response to any State questions, required clarifications/amplifications, and conclude upon due completion of the required amendments and State approval of the Deliverable.

This SL will commence upon Project initiation and will prevail until Project completion.

Formula:

| Deliverable Acceptance | = | $\dfrac{\text{\# Deliverables Accepted During Period (less ODT review Time)}}{\text{\# Deliverables Presented During Period}}$ | X 100 |

Measurement Period: Monthly, During Project

Data Source: Weekly Project Report

Frequency of Collection: Weekly

4.5.4 Support of ODT Activities - UAT Process and Environment Support

Specification: UAT Process and Environment Support

Definition: The Contractor must support ODT UAT activities based on their knowledge of the overall system, responsibility to maintain platform and application environments, regression

test beds, automated tools and retained developers on the Project to affect prompt and quality resolution to issues detected by ODT during a UAT phase.

Platform and Application testing environments are to be functional and available to ODT to conduct UAT activities, configured with all required base configuration and test data, application code and other elements as required to support the overall State testing effort.

The Contractor must provide a system(s) to accept and track any issues, defects or questions arising from ODT during the performance of UAT functions and acknowledge all issues with an estimate to resolve these issues within 2 business hours of receipt of the issue.

This SL will commence upon the delivery of a function set to ODT to perform any User Acceptance or Validation Testing and be in effect during the overall ODT testing effort including the Contractor efforts, joint efforts or in support of ODT activities as agreed and apply to initial testing elements, regression/fix elements, performance and integration testing prior to production use.

NOTE: All incidents, defects, or questions will be recorded in a mutually agreeable tool and will be acknowledged with an estimate to resolve within 2 business hours.

Formula:

$$\text{UAT Process and Environment Support} = \frac{\substack{\textbf{\# Business Hours, Seven Days Per Week During UAT Period} \\ \textbf{– (\# Hours testing environments unavailable or unusable to perform testing} \\ \textbf{+ \# Business Hours beyond standard State inquiries that are not acknowledged and estimated)}}}{\textbf{\# Business Hours, Seven Days Per Week During UAT Period}} \times 100$$

Measurement Period: Monthly, During Project

Data Source: Weekly Project Report

Frequency of Collection: Monthly

4.5.5 Development Methodology Compliance - SDLC Compliance

Specification: SDLC Compliance

Definition: The Contractor will present and adapt as required a Software Development Lifecycle (SDLC) Methodology to manage the end-to-end software delivery process. This process will be followed.

The Contractor must provide as part of overall Project delivery a proven and tested SDLC to drive and govern the overall software development process and adapt wherever possible to accommodate State considerations and processes. Based on this SDLC and

the prescribed development stages (e.g., requirements, design, build, test, deployment) and phase exit documentation, reviews and signoffs, this process will be followed for the duration of all Projects contracted by ODT.

Notwithstanding State review and approval cycles, this SL will commence upon Project initiation and will prevail until Project completion.

Formula:

$$\text{SDLC Compliance} = \frac{\text{\# Deliverables, Activities, Reviews for Signoffs Made Per Phase/SDLC Gate}}{\text{\# Deliverables, Activities, Reviews and Signoffs presented for Per Phase/SDLC Gate}} \times 100$$

Measurement Period:	Monthly, During Project
Data Source:	Weekly Project Report
Frequency of Collection:	Weekly

4.5.6 Project Completion - Defects Detected and Resolved in Production

Specification: Defects Detected and Resolved in Production

Definition: During post-implementation, the Contractor must continue to support and promptly resolve any defects emerging after implementation in the production environment for a period of one year from the date of production deployment.

The Contractor must measure all production exceptions, issues, or problems associated or in conjunction with the one-year warranty support period associated with a move of a software release to the production environment regardless of the severity level unless otherwise agreed with ODT. Function points from system and user acceptance testing will serve as the basis for counting the total number of elements associated with a release.

This SL will commence upon promotion of code associated with the Project release to the production or commercial environment and will prevail until all incidents, problems and defects are resolved to ODT's satisfaction or one year, whichever is longer.

Formula:

$$\text{Defects Identified and Resolved in Production} = \frac{\text{Total Time in Hours Required to Resolve Defects Identified During the one year warranty support production Period}}{\text{Total Hours included in a Production Release}} \times 100$$

Measurement Period:	Monthly, During Project
Data Source:	Weekly Project Report
Frequency of Collection:	Weekly