

NYC DEPARTMENT OF EDUCATION: SESIS ASSESSMENT REPORT

I. Introduction

Effectively serving the needs of students with disabilities is a top priority of Mayor Bill de Blasio’s administration. In order to fulfill that mission, the Mayor, in the January 2017 Financial Plan,¹ proposed a commitment of substantial resources to improve the student information system supporting special education in New York City. These proposed investments represent the culmination of a multi-agency assessment of the performance of the current system, the Special Education Student Information System (SEIS). Accordingly, we have drafted this SEIS Assessment Report (the “Report”) to outline the recommendations stemming from the initial phase of the assessment, which was performed during the spring and summer of 2016. It was performed by a team of New York City (“City”) employees who work for various City entities, including the Department of Information Technology and Telecommunications (DoITT), the New York City Department of Education (“DOE”), the New York City Office of Management and Budget (OMB), the Law Department, and the Mayor’s Office. This Report provides an overview of DOE’s special education system, team findings, work already undertaken, and recommendations for work to be done in the future to improve SEIS.

In addition to charting a course to a robust and stable system over the long term, the assessment team also identified rapid fixes that could be made to SEIS, many of which have been implemented already. At the start of the current (2016–17) school year, several improvements were put in place, resulting in a user experience that is already noticeably better.

This Report details the progress made to date; proposed investments to address core performance and data analysis issues; and longer-term recommendations requiring further analysis in order for implementation to be possible, including timeframes for completing that analysis.

II. Background

Over 280,000 New York City students between the ages of three and 21 have individualized education programs (IEPs), individualized education services programs (IESPs) or services plans (SPs) (collectively, “Programs”) pursuant to the Individuals with Disabilities Education Act (IDEA). These students attend public, charter, state-approved non-public, and private (including religious) schools. The DOE is responsible for the development of their Programs, which are written documents prepared by a team that includes, at a minimum, educational professionals from the DOE and the student’s parent(s). Each Program sets forth the student’s present levels of performance, annual goals, and recommended special education programs and/or related services (“special education services”) for the year covered by the Program. Programs are required to be reviewed and updated at least annually.

In the 2011–2012 academic year, DOE transitioned from paper-based IEPs for school-age students with disabilities to a computer-based system, called the Special Education Student Information System (SEIS). SEIS was intended to support the entire special education life-cycle of each student; facilitate and monitor timely and efficient delivery of special education services by DOE and third-party service-providers; produce federal, state, and City reports; and support Medicaid claims to achieve a level of reimbursement commensurate with Medicaid-eligible services

¹ January 2017 Financial Plan,” <http://www1.nyc.gov/assets/omb/downloads/pdf/tech1-17.pdf>

provided.

While SESIS has been operational since 2011 and has resulted in a comprehensive ability to create and access IEPs and other critical documents pertaining to school-age students with disabilities citywide, DOE's vision of using SESIS to support full implementation of special education services for preschool and school-age students has yet to be completely realized. Issues with system functionality, data capture/storage and system performance have hampered SESIS's ability to track compliance with and generate key special education metrics and reports, and to monitor provision of related services eligible for Medicaid reimbursement.

Five years in, it is apparent that improvements are needed to fully realize the objectives of SESIS. To begin this work, a team was formed to conduct an in-depth assessment of the software systems that comprise SESIS and to identify needed improvements. The team is composed of representatives from the DOE, including the Chancellor's Office, the Division of Specialized Instruction and Student Support (DSISS), the Division of Finance, and the Division of Instructional and Information Technology (DIIT); the City's Department of Information Technology and Telecommunications (DoITT); NYC Law Department; the City's Office of Management and Budget; and the Mayor's Office. The group identified changes that could be implemented in the short term with existing capacity, as well as changes that require additional capacity. The team also began discussions about the vision and scope of the system we intend to have in the future.

This report concludes the initial phase of the SESIS assessment and provides an overview of the work that has been completed, along with our plans to improve SESIS going forward.

III. Overview of Areas of Findings

The assessment covered five key areas spanning the technology, support, and governance underlying SESIS. First, the team undertook an **in-depth analysis of SESIS**, including its stability, performance, reliability, and basic functionality (SEIS Usability).

Second, **we evaluated SESIS's architecture challenges**, such as dependencies on existing DOE systems, document routing, and special education reporting solutions. We determined that current systems do not have a common set of definitions and do not support complete information exchange among key DOE systems. Most notably, the DOE's system for tracking student course programming (STARS) does not smoothly interface with SESIS, resulting in an incomplete exchange of information and inconsistent reporting of whether student IEP program recommendations are being implemented. Additionally, we identified key areas where information is not collected in a manner that would support robust Medicaid claiming.

Third, as we have previously reported publicly in the context of providing the reports required pursuant to City law, SESIS's existing reporting capacity does not currently meet the need for a robust and comprehensive reporting system. The current system results in an inability to produce reporting on certain key special education metrics in a reliable and efficient manner. Thus, we assessed how best to **address reporting and analysis needs**.

Fourth, the assessment team evaluated **SEIS's support services** to gain an understanding of the support tools, processes, system monitoring and change management practices that support SESIS users. We identified problems in user support, overlapping tracking systems that do not fully communicate with each other, and an incomplete response process.

Finally, using industry standard tools and practices, **DOE's network performance and network architecture were evaluated**. We identified problems with existing network architecture and bandwidth, a need for network monitoring, security issues, and unsupported computing infrastructure. Insights gained through this element of the assessment are included here to the extent that they specifically pertain to SESIS. While the overall DOE's network performance and architecture are beyond the scope of this report, it is important to note that the Mayor's January 2017 Financial Plan includes two significant infrastructure investments related to network performance and architecture: \$15.8M in Fiscal Year 2017 and \$8 million in Fiscal Year 2018 to support expanded (and lower cost) broadband access to schools, and \$7.9M in Fiscal Year 2017, growing to \$11.5M by Fiscal Year 2021, to support the Next Generation Network Initiative. The Next Generation Network initiative will build industry standard data centers, which will ultimately

increase bandwidth to schools. The many positive effects of increased network capacity and speed will include improved performance of SESIS and other administrative systems.

IV. Overview of Current Status

To most effectively and expeditiously improve SESIS, the assessment team divided the findings and their corresponding recommendations into three categories based on estimated length of completion.

First, the team identified and prioritized the SESIS enhancements that were most urgently needed to improve data accuracy and application performance. The first challenge the team found was that SESIS used, as its base, an unsupported and outdated software system. SESIS was originally based on proprietary third-party software called TIENET. TIENET was originally licensed under contract with Maximus, the company that owned the software. In 2015, DOE canceled its vendor contract. However, in 2016, a different company, PowerSchool, purchased the underlying TIENET source code. As the sole owner of the underlying software, PowerSchool was the only option for badly needed short-term improvements to SESIS. The team worked closely with PowerSchool to identify improvements that could be made in DOE's current TIENET operating system (version 13.1). The team also determined that PowerSchool, in addition to delivering modifications to the current version, has the exclusive capacity to also deliver upgrades to TIENET (version 16) that will enhance SESIS productivity and performance. The team concluded that PowerSchool is uniquely qualified to make necessary and significant upgrades to SESIS and it was therefore appropriate to enter a new contract with PowerSchool to upgrade to the current TIENET version.

The team also identified enhancements that could be implemented without upgrading to the latest version of TIENET. As the assessment was underway and prior to the start of the 2016–17 school year, PowerSchool provided needed support to make configuration changes in the existing SESIS system. Immediate steps were also taken to improve the performance of user reports and the quality of a small number of critical reports. Basic fixes were also made to the system to facilitate the user experience; for example, on screen help tips now assist staff with certain actions in SESIS and alerts now ensure that users complete the data input process in the correct order. This first set of improvements were made even as the assessment continued.

Next, the team focused on the processes and technical requirements necessary to make SESIS an effective tool for monitoring and reporting on critical special education metrics and maximizing Medicaid reimbursement claiming. A key term of the new contract with PowerSchool is an explicit commitment to support the DOE, post upgrade, in making enhancements and modifications to the system to meet DOE's unique needs. The contract commits PowerSchool to providing the necessary programming hours for this purpose.

The assessment also identified a need for additional training of personnel using SESIS. Accordingly, DOE will conduct additional substantial and comprehensive training for SESIS users, which will continue as the DOE upgrades to an enhanced version of the computer system.

Finally, the team outlined a path to assess and develop a framework for a comprehensive end-state system that supports DOE in addressing the full complement of special education program management requirements. These requirements include, but are not limited to: conducting special education evaluations, including bilingual or interpreter-assisted evaluations, as needed; implementing enhanced case management functionality; recommending and provisioning special education services, including services for students with disabilities who are English Language

Learners; documenting Medicaid-eligible services efficiently and thoroughly; effectively tracking and reporting on initiation and ongoing provision of special education services; and assessing outcomes for students with disabilities.

V. Overview of Recommendations

The key recommendations derived from the SESIS assessment are aimed at providing pathways for immediate, medium-term, and long-term improvements to SESIS. The recommendations are classified into the major categories of system functionality and/or business processes they are intended to address. The recommendations are further organized into three categories based on status and estimated time to completion. The categories are Recommendations Completed; Recommendations to be Completed; and Recommendations Needing Further Analysis.

A. Recommendations Completed

Recommendations in this category were implemented as they were developed because their benefit was compellingly clear and because it was feasible to implement them in the current hardware and software environment.

1. SESIS Usability:

SEGIS Usability

- (1) Created, for the first time, a single e-mail account for application exceptions. They are now sent to one email account, which is supported by a single unit of support staff. This facilitates both error tracking and coordinated prioritization of future fixes, taking into account challenges encountered by users.
- (2) Fixed errors that prevented pages from loading due to missing resources (e.g., image files) as well as queries with high failure rate.
- (3) Educated users about the option to reconnect (log back in) in the case of timeouts to save their work in progress.

2. System Reporting and Analysis:

Report Quality and Performance:

- (1) Pointed all existing SESIS Standard reports to the mirror SESIS database instead of the production database to improve system performance.
- (2) Channeled newly created reports to run only against the mirror database.
- (3) Increased the syncing frequency between the production and mirror databases to support the use of time-sensitive reports.
- (4) Improved data quality of four critical user-reports within SESIS.

3. Support Services:

Training and Guidance:

- (1) Educated users on the currently supported browser versions (Internet Explorer 7, 8, 9, 10; Firefox 4+) for SESIS.
- (2) Configured SESIS to provide on-screen, field-level help (tool tips) to users on select screens, documents and fields.

These upgrades have already resulted in concrete improvements for SESIS users. For example, one category of user queries related to special education programmatic services on IEPs, that previously failed about 800,000 times a day, no longer has any failures; a “Missing Files” issue that resulted in HTTP 404 errors about 10,000 times a day, now occurs just 8 times a day; for

Google Chrome or Apple Safari browsers, staff no longer receive an error message when scrolling and saving edits to a document after the browser's cache is cleared; and a search-related problem that used to result in about 3,100 timeouts a day is down to just 600 timeouts a day.

Other upgrades now in place have improved the user experience in other tangible ways. On screen help tips have been added for select screens and fields. Reports are now retrieved from the aforementioned "mirror" site instead of TIENET's operational database, enabling faster and more reliable access to student reports and improving application performance for users. And the Status of Annual Review and Placement Status reports include a number of improvements.

B. Recommendations to be completed

Recommendations in this category will be implemented. Where no timeline is indicated, the recommendation is dependent on another recommendation being completed before a process and timeline can be established. A timeline for all recommendations in this section will be treated as a priority, and will be developed by Fall/Winter 2017 as DoITT and the DOE work together to upgrade the current software.

To ensure that these goals are achieved in a timely fashion, the Mayor's January 2017 Financial Plan includes \$16.2 million in Fiscal Year 2018, rising to \$16.8 million in subsequent years, to fund essential work to strengthen SESIS, provide training, and create a data warehouse. These improvements will address usability issues, common user errors, and some basic functionality problems. Additional staff will be hired to provide needed support, including training, and generation of data needed to manage special education citywide, including data needed for compliance reporting on special education metrics.

1. SESIS Usability

Archiving:

(1) Explore options related to archiving data to address database exceptions due to large data volume.

Data Validation and Processing:

(1) Continue to optimize the database and queries to reduce timeouts and database locks that impact performance and, in certain cases, cause data loss.

(2) Identify and define robust front-end data entry validation rules for better data quality, data integrity, and report accuracy.

(3) Identify and define all data fields in the system's user interface that can be pre-populated to reduce data entry.

External Communications/Linkages:

(1) Evaluate the value and feasibility of expanding the existing Parent Portal to include key special education student specific information and documents. (Timeline: Spring 2018)

(2) Explore features available in new version to allow for email notifications to end users. (Timeline: Fall 2017)

Browser Related Issues:

(1) Ensure DOE end users are accessing SESIS through browsers that meet the application's requirements. (Timeline: Fall 2017)

2. SESIS Architecture

Document Handling:

(1) Assess value and level of effort of implementing an electronic scanning or electronic signature solution, considering legal and privacy restrictions on student information. (Timeline: Assess best path forward after TIENET upgrade is completed in Fall 2017).

Encounter Attendance Module:

(1) Implement City-designed improvements to the Encounter Attendance screen, including pre-populating relevant data. (Timeline: By November 1, 2017)

(2) Explore options available to reduce the challenges with configuring CPT codes in the Encounter Attendance screen. (Timeline: By November 1, 2017)

Provider Assignment Module (PA):

(1) Complete development, testing and implementation of the PA “Delta process,” which will provide more frequent updates of IEP mandates and school changes from TIENET to the Provider Assignment system, and allow for more timely and accurate assignment of providers.

(2) Evaluate the feasibility and value of expanding the use of the Provider Assignment system to include DOE staff who provide related services to students.

Access and Security Improvements:

(1) Modify the authorization logic within SESIS to better support a role/location association mechanism, which allows roles to be associated with a provider at a location.

(2) Modify application pages identified by the vendor to address some of the known authorization issues pertaining to agency supervisors.

(3) Improve account and access management within the SESIS application.

3. System Reporting and Analysis

Data Warehousing/Reporting/Business Intelligence:

(1) Implement a sustainable special education operational data store and data warehouse focused on meeting DOE’s critical special education reporting needs (operational, management/analytical and legal/regulatory). This solution should include all data elements necessary to meet DOE’s current special education reporting needs, including those specific to English language learners, and to enable regular public reporting on major data points. (Timeline: Immediate start, initial deliverable September 2017, subsequent ongoing work)

(2) Enforce use of a centralized data repository to ensure reporting accuracy and consistency. (Timeline: Fall 2017, ongoing)

(3) Collect and store all historical Special Education data to meet legal reporting and record retention requirements. (Timeline: Immediate start, completion within 18 months)

Report Quality and Performance:

(1) Analyze defects identified in critical TIENET reports and engage with PowerSchool to resolve these defects. (Timeline: Spring 2018)

(2) Upgrade to SQL Server 2012 or later and enable “Always On” technology to create a real-time replica of the production data for reporting purposes. (Timeline: Fall 2017)

4. Support Services

Training and Guidance:

Create a comprehensive training plan for new and existing SESIS users citywide, including the following:

(1) Conduct substantial, role-based training for new SESIS users and targeted training on new features in advance of the TIENET 16 version upgrade.

(3) Build in milestones within release planning to update materials and offer/deliver relevant training.

(4) Ensure that DOE is adequately staffed to provide SESIS training and leverage consulting contracts to supplement DOE resources.

C. Recommendations needing further analysis

Some recommendations in this category may need to be reconsidered following completion of other changes, such as the upgrade to TIENET 16. Other recommendations may need further analysis to determine the level of effort, feasibility, and expected benefit; some suggested changes may not make sense to undertake until a complete long-term plan is fully in place. For example, the recommendations in the “SEGIS Usability” section may be addressed by software improvements, or further work may be necessary.

For each of the recommendations in this section, a fuller analysis will be conducted between now and April 2018 as part of the rollout of future post-upgrade enhancements to SEGIS.

1. SEGIS Usability

Case Management:

- (1) Explore new/enhanced functionality in TIENET, including any features enabling linkages of documents and events.
- (2) Evaluate the possibility of automating processes for updating student eligibility status (activation/inactivation).
- (3) Determine options to effectively link encounters to IEP recommendations, along with other critical data through the life of a case.
- (4) Configure SEGIS to notify end users of key information via email, such as upcoming and overdue items, using case management icons and email notification.

SEGIS Usability:

- (1) Fix any defects pertaining to users not being able to save changes.
- (2) Display key data pulled from documents directly in student profile sections.
- (3) Leverage new version capability for improved Service Record history filtering.
- (4) Create a historical student view to provide the details of a student’s special education history in an easily accessible format.

2. SEGIS Architecture

Encounter Attendance Module:

- (1) Modify the Encounter Attendance screen to capture services that are delivered by a substitute provider.
- (2) Identify features available in the new version of TIENET to enhance the user’s ability to schedule reoccurring sessions with default session settings to streamline scheduling of related services and recording encounter attendance.

Access and Security Improvements:

- (1) Evaluate the access provisioning process to determine possible improvements for DOE and non-DOE staff.

System Environments:

- (1) Ensure that all SEGIS environments (including training) are consistent and that staging specifically replicates production to facilitate pre-production release testing.

3. System Reporting and Analysis

Document Configurations:

- (1) Enhance programming to facilitate the ability to generate, send and track issuance to families of certain documents in the covered DOE languages, as necessary.
- (2) Explore options to track requests for and translations of documents into covered languages or other languages.
- (2) Engage with PowerSchool to evaluate options to simplify the process of configuring forms and notices to meet changing regulatory or operational requirements.

4. Support Services

Training and Guidance:

- (1) Establish multiple avenues (*e.g.*, in-person seminars, webinars, online self-paced courses, live streaming) for accessing training sessions, and publicize sessions to targeted audiences.

VI. Conclusion:

As this report conveys, we have begun to implement significant improvements to SESIS while developing a working plan toward a long-term solution. As a result of the action-oriented approach taken by the assessment team, several important milestones have been achieved and funded. These include improved user experience and stability of the current system; aggressive timelines for the next stages of key fixes and improvements to SESIS; commitment to build a data warehouse; a timeline for a much more robust Medicaid claiming process; and a timeline for assessing progress and developing a long-term plan to support and enhance SESIS with the goal of better serving the City's students with disabilities. This work is a top priority, and our ultimate goal is the implementation of a highly effective and user friendly system.