



# City of New York

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## OFFICE OF THE COMPTROLLER

Scott M. Stringer  
COMPTROLLER



## MANAGEMENT AUDIT

**Marjorie Landa**

Deputy Comptroller for Audit

### **Audit Report on the Department of Education's Controls over the Distribution of Remote Learning Devices**

MD21-061A

July 28, 2021

<http://comptroller.nyc.gov>



THE CITY OF NEW YORK  
OFFICE OF THE COMPTROLLER  
SCOTT M. STRINGER

July 28, 2021

To the Residents of the City of New York:

My office has audited the New York City Department of Education (DOE) to determine whether the agency has adequate controls in place over the distribution of remote learning devices between March 2020 and March 2021. We perform audits such as this as a means to ensure that agencies are accountable for City resources.

The audit found several inadequacies in DOE's controls over the distribution of remote learning devices which increased the risk of waste, fraud, and abuse. DOE did not centrally track devices schools issued from their in-house inventories to help ensure that additional devices were not issued to students who had already received them from their schools. In addition, DOE did not have formalized procedures for the review and validation of students' request for a device, and the tracking, distribution, and recall of devices at the numerous individual schools throughout the City. Finally, DOE did not perform timely reviews of device-related data because it did not have an ongoing process for tracking and reconciling requests for devices and devices that have been distributed.

To address these and other issues, the audit makes 10 recommendations, including that DOE should ensure that a central tracking system to account for all devices issued to students is established; develop and timely disseminate detailed written policies and procedures governing the agency's management of validating student requests for a device, distributing and tracking those devices, and recalling those devices; and ensure that its device request data is reconciled to the device distribution data to provide an accurate account for all requests made and for the students who received devices.

The results of the audit have been discussed with DOE officials, and their comments have been considered in preparing this report. Their complete written response is attached to this report.

If you have any questions concerning this report, please e-mail my Audit Bureau at [audit@comptroller.nyc.gov](mailto:audit@comptroller.nyc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Scott M. Stringer".

Scott M. Stringer

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# CITY OF NEW YORK OFFICE OF THE COMPTROLLER MANAGEMENT AUDIT

## Audit Report on the Department of Education's Controls over the Distribution of Remote Learning Devices

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### EXECUTIVE SUMMARY

The Department of Education (DOE) provides primary and secondary education to over one million students, from early childhood to grade 12, in over 1,800 schools. DOE prepares students to meet grade level standards in reading, writing, and math, and prepares high school students to graduate ready for college and careers.

Due to the COVID-19 pandemic, DOE was forced to close its schools and transition to remote learning in March 2020. However, many students were unable to participate in remote learning because they did not have a device or internet at home.

To address the needs of these students, DOE's Division of Instructional and Information Technology (DIIT) was tasked with procuring, preparing, and distributing internet-enabled iPads to the hundreds of thousands of students who needed them.<sup>1</sup> To receive a centrally-issued DOE iPad, a family needed to submit a request (one request per child) using the online request form or call DOE's Helpdesk or 311.<sup>2</sup>

Some schools provided devices they had in their inventory to students last year during the beginning of remote learning, but this was done independently from the distribution of devices by DIIT.

Due to a limited supply of iPads during the early stages of the pandemic, requests needed to be prioritized. Through April 17, 2020, requests were ranked in order of priority, and only prioritized

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<sup>1</sup> Eligible students: NYC public school, DOE Pre-K or 3K program (NYCEEC/FCC) students; charter school students with individualized education programs (IEPs) or who are living in shelter, foster care, or are living doubled up; private school students who were recommended for a non-public school placement by the DOE and placed at a state-approved non-public school by the Central Based Support Team, or who attend a private or religious school and receive special education services from the DOE, preschool students who receive special education services from the DOE (NY State-Approved 4410 providers or Special Education Itinerant Teacher services). iPads are loaned and must be returned to DOE when the student graduates or upon the conclusion of remote learning.

<sup>2</sup> DOE did not require students who live in a shelter to request a device. Instead, it provided devices to all students it identified as living in a shelter.

requests were fulfilled from each batch.<sup>3</sup> According to DOE, as of April 17, 2020, requests were no longer prioritized because it had enough supply to fulfill all requests.

According to DOE officials, 357,000 iPads were purchased for distribution during School Year 2019-2020, 104,000 iPads were purchased for distribution during School Year 2020-2021, and an additional 50,000 iPads were purchased in December 2020 to fulfill the remaining outstanding requests. According to DOE, the agency spent approximately \$287 million for the 511,000 iPads.<sup>4</sup> DOE also pays approximately \$4 million a month for the data plans for these devices.

## Audit Findings and Conclusion

In the face of the COVID-19 pandemic, DOE was called on to procure and distribute remote learning devices to its students system-wide to enable remote learning, with no advance planning and under extreme time constraints. While we fully recognize the difficult situation that DOE was in, we found several inadequacies in DOE's controls over the distribution of remote learning devices that increased the risk of waste, fraud, and abuse. Specifically:

- DOE does not centrally track devices schools issued from their in-house inventories to help ensure that DIIT does not issue additional devices to students who already received them from their schools.
- DOE has not formalized procedures for the tracking and distribution of devices, which increased the risk that the criteria for device request validation, device distribution, and device recall would not be understood and applied on a consistent basis throughout DOE, including at the numerous individual schools throughout the City that, as of School Year 2020-2021, review and validate students' requests.
- DOE does not perform timely reviews of device-related data. DOE does not have an ongoing process for tracking and reconciling requests for devices and devices that have been distributed.
- Deficiencies exist in DOE's management of control numbers, specifically, request IDs from DOE's request data and asset tag numbers assigned to iPads were not sequential.

DOE has, however, developed controls that, if they function as designed, may provide reasonable assurance that DIIT will not issue students more than one device through DOE's remote learning device program. While these controls would not address the possibility that additional devices could be issued to students by their individual schools, it would, if implemented as intended, reduce the chance that DIIT itself would issue more than one device to an individual student.

According to DIIT's Chief Technology Officer, of the 357,000 devices purchased in April and June 2020, 3,045 students received more than one of these devices, which could result in the inequitable distribution of devices. As of April 2021, DOE was still reconciling its data; consequently, this number could potentially increase. Based on the data deficiencies discussed above, we are unable to identify:

- the actual number of students who were issued devices by DIIT; and

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<sup>3</sup> DOE's order of priority was as follows: (1) students in shelters; (2) students in temporary housing living with another family; (3) students in foster care; (4) high school students (first those in NYCHA housing, then those with disabilities, then English language learners); (5) middle school students (first those in NYCHA housing, then those with disabilities, then English language learners); and (6) elementary school students (first those in NYCHA housing, then those with disabilities, then English language learners).

<sup>4</sup> This includes the cost of the iPads, cases, staging, and distribution.

- the number of devices that were shipped to all of the students who received a device from DIIT.

If the weaknesses we identified in this audit are not corrected, DOE will have increased difficulty distributing devices in an equitable manner and ensuring that students who are in need of a device receive one.

## Audit Recommendations

Based on the audit, we make 10 recommendations, including:

- DOE should ensure that a central tracking system to account for all devices issued to students is established, regardless of whether they are issued by DIIT or by schools from their in-house inventories.
- DOE should develop and timely disseminate detailed written policies and procedures governing the agency's management of validating student requests for a device, distributing and tracking those devices, and recalling those devices, including specific return deadlines.
- DOE should ensure that its device request data is reconciled to the device distribution data to provide an accurate account for all requests made and for the students who received devices.
- DOE should ensure that Request IDs are issued in sequential order and tracked, and that any gaps in these numbers are investigated in a timely manner and the reasons for them adequately documented.
- DOE should modify its policy to ensure that asset tag numbers are issued in sequential order and tracked, and that going forward, any gaps in these numbers are investigated in a timely manner and the reasons for them adequately documented.
- DOE should take steps to ensure that the remaining devices that were shipped to students in error are returned and put back into inventory to be distributed if needed.
- DOE should take appropriate action where devices have not been returned, including referring matters to the agency's investigative units or DOE's Special Commissioner for Investigation when warranted.

## Agency Response

In its response, DOE agreed with 8 of the audit's 10 recommendations. However, for two of these recommendations (#3 and #4), officials' assertion that the agency was already in compliance is contradicted by the audit findings. Additionally, DOE disagreed with the audit's recommendations that it ensure that Request IDs and asset tag numbers are issued in sequential order and tracked (#7 and #8). DOE also disagreed with some of the report's findings and conclusions relating to the agency's reviews of device-related data and the sequential numbering of request IDs and asset tag numbers. After carefully reviewing DOE's response, we find no basis to alter any of the report's findings or recommendations.

# AUDIT REPORT

## Background

DOE provides primary and secondary education to over one million students, from early childhood to grade 12, in over 1,800 schools. DOE prepares students to meet grade level standards in reading, writing, and math, and prepares high school students to graduate ready for college and careers.

Due to the COVID-19 pandemic, DOE was forced to close its schools and transition to remote learning in March 2020. However, many students were unable to participate in remote learning because they did not have a device or internet at home.

To address the needs of these students, DIIT was tasked with procuring, preparing, and distributing internet-enabled iPads to the hundreds of thousands of students who needed them. To receive a centrally-issued DOE iPad, a family needed to submit a request (one request per child) using the online request form or call DOE's Helpdesk or 311.

Prior to being distributed to students, most DOE iPads were shipped to IBM for staging, and a small number were staged by Apple. The staging process includes adding the SIM card for data usage, installing the requisite DOE applications and security tools, adding LTE connectivity, and affixing an asset tag. Once they were fully staged, IBM, or Apple, shipped the iPads to NTT, DOE's support vendor and distributor for personal computers, which is responsible for shipping iPads directly to students from its warehouse as well as coordinating with Apple for repairs and returns. Some schools provided devices they had in their inventory to students last year during the beginning of remote learning, but this was done independently from the distribution of devices by DIIT.

Due to a limited supply of iPads during the early stages of the pandemic, requests needed to be prioritized. Through April 17, 2020, requests were ranked in order of priority, and only prioritized requests were fulfilled from each batch. According to DOE, as of April 17, 2020, requests were no longer prioritized because it had enough supply to fulfill all requests.

According to DOE officials, 357,000 iPads were purchased for distribution during School Year 2019-2020, 104,000 iPads were purchased for distribution during School Year 2020-2021, and an additional 50,000 iPads were purchased in December 2020 to fulfill the remaining outstanding requests. According to DOE, the agency spent approximately \$287 million for the 511,000 iPads. DOE also pays approximately \$4 million a month for the data plans for these devices.

## Objective

To determine whether DOE has adequate controls over the distribution of remote learning devices.

## Scope and Methodology Statement

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings

and conclusions based on our audit objective. This audit was conducted in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

The scope of this audit was March 2020 through March 2021.

## Discussion of Audit Results with DOE

The matters covered in this report were discussed with DOE officials during and at the conclusion of this audit. A preliminary draft report was sent to DOE on May 12, 2021 and discussed at an exit conference held on May 20, 2021. On June 1, 2021 we submitted a draft report to DOE with a request for written comments. We received a written response from DOE on June 15, 2021. In its response, DOE agreed with 8 of the audit's 10 recommendations. However, officials' assertion that the agency was already in compliance with two of these recommendations (#3 and #4), is contradicted by the audit findings. Additionally, DOE disagreed with the audit's recommendations that it ensure that Request IDs and asset tag numbers are issued in sequential order and tracked (#7 and #8).

DOE also disagreed with some of the report's findings and conclusions. For example, DOE stated,

In response to the Comptroller's statements regarding timely reviews of device-related data, the DOE utilized numerous specialized data queries to review data on a near hourly basis from the start of the pandemic. The DOE held daily meetings with staff and senior management to review device request and supply chain data to fulfill the requests. These activities included: a) reviewing data related to projected delivery dates of devices and SIM cards from manufacturers, b) the capacity and daily throughput of our staging vendors, and c) the delivery of devices by third-party carriers, either directly to students or schools. Samples of these reports were shared with the Audit team.

In its response, DOE refers to various activities relating to the distribution of devices; however, it provided no documentary evidence of any of the reviews it states were undertaken in its response, such as reconciliations between device request data and device distribution data. Further, DOE's claim that it shared samples of specialized data query reports with us is incorrect. Rather, as stated in the report, DOE provided us with *blank report templates* that contained *no data*. Further, DOE provided these templates in April 2021, after our fieldwork was completed and eight months after we first requested that DOE provide us with any device-related internal reports utilized by staff. As a result of the months-long delay in providing these templates, we have no assurance that DOE did not develop them subsequent to our request, nor were we able to test the degree to which DOE personnel in fact utilized the reports represented by these templates.

With regard to our finding of deficiencies in DOE's management of control numbers, DOE stated,

. . . DOE utilizes a demand management system and enterprise device management tool, negating the need for specific legacy inventory management protocols such as sequential manually-applied asset tags or sequential request ID numbers. Thus, the DOE does not concur with the recommendation that request IDs or asset tag numbers be sequential to ensure all requests and devices received are adequately documented with unique identification numbers. The demand and device management systems provide unique identifiers that fulfill the control objective to track each request received and device received and distributed.

However, a key benefit of using sequentially numbered asset tags and request IDs is that it helps facilitate the detection of devices and requests that are unaccounted for. While DOE claims that its demand and device management systems provide unique identifiers that fulfill the control objective of tracking each request received and device received and distributed, it provided no specific details or evidence of how this is done and did not demonstrate whether and how these systems negate the need for, and benefits of, sequential numbering. As stated in the report, the failure to assign asset tag numbers in sequential order greatly diminishes the effectiveness of identification tags as a control mechanism, making it more difficult for DOE to monitor, track, and account for all iPads, which increases the risk that such items could be stolen or lost without detection. Likewise, the failure to sequentially number request IDs increases the risk that requests may not be recorded or may be deleted inappropriately and that such failures would go undetected.

DOE further stated,

The DOE did receive multiple device requests from individual students but had mitigating controls in place at critical points in the process to ensure that students received only one device, even if they submitted multiple requests.

As we state in the report, DOE was still reconciling its data when we ended our audit fieldwork in April 2021; thus, the number of students identified by DOE as having erroneously received more than one device could potentially increase. Additionally, due to the data deficiencies identified during this audit, we were unable to place a reasonable degree of reliance on the data provided by DOE. Consequently, we were unable to fully test the degree to which the agency's controls were in fact operating as intended to ensure that students received only one device.

After carefully reviewing DOE's response, we find no basis to alter any of the report's findings or recommendations. The full text of DOE's response is included as an addendum to this report.

## FINDINGS AND RECOMMENDATIONS

In the face of the COVID-19 pandemic, DOE was called on to procure and distribute remote learning devices to its students system-wide to enable remote learning with no advance planning and under extreme time constraints. While we recognize the difficult situation that DOE was in, we found several inadequacies in DOE's controls over the distribution of remote learning devices that increased the risk of waste, fraud, and abuse. Specifically:

- DOE does not centrally track devices schools issued from their in-house inventories to help ensure that DIIT does not issue additional devices to students who already received them from their schools.
- DOE has not formalized procedures for the tracking and distribution of devices, which increased the risk that the criteria for device request validation, device distribution, and device recall would not be understood and applied on a consistent basis throughout DOE, including at the numerous individual schools throughout the City that, as of School Year 2020-2021, review and validate students' requests.
- DOE does not perform timely reviews of device-related data. DOE does not have an ongoing process for tracking and reconciling requests for devices and devices that have been distributed.
- Deficiencies exist in DOE's management of control numbers, specifically, request IDs from DOE's request data and asset tag numbers assigned to iPads were not sequential.

DOE has, however, developed controls that, if they function as designed, may provide reasonable assurance that DIIT will not issue students more than one device through DOE's remote learning device program. While these controls would not address the possibility that additional devices could be issued to students by their individual schools, it would, if implemented as intended, reduce the chance that DIIT itself would issue more than one device to an individual student.

According to DIIT's Chief Technology Officer, of the 357,000 devices purchased in April and June 2020, 3,045 students received more than one of these devices, which could result in the inequitable distribution of devices. As of April 2021, DOE was still reconciling its data; consequently, this number could potentially increase. However, based on the data deficiencies discussed above, we are unable to identify:

- the actual number of students who were issued devices by DIIT; and
- the number of devices that were shipped to all of the students who received a device from DIIT.

If the weaknesses we identified in this audit are not corrected, DOE will have increased difficulty distributing devices in an equitable manner and ensuring that students who are in need of a device receive one.

These weaknesses are discussed in the following sections of this report.

### **No Mechanism to Ensure That DIIT and Schools Did Not Both Issue Device to Same Student**

According to the Department of Information Technology and Telecommunications' (DoITT's) *Citywide Policy for Asset Management*, asset management includes "planning, tracking and

maintaining of IT assets . . . and maintaining [the] associated information in a centralized database.” However, DOE does not currently have a centralized tracking mechanism in place for devices schools distributed from their in-house inventory for School Years 2019-2020 or 2020-2021.

On January 5, 2021, the Deputy Comptroller for Audit sent a letter to the DOE Chancellor’s Office to advise it of this issue with a request for the actions that DOE would undertake to remedy it. We received a response from DOE on May 20, 2021. In the letter, DOE stated that it has worked to make several improvements to support this system-wide summary of devices, including the implementation of a centralized mobile device management system. DOE also indicated that it submitted a “Request for Proposal” for a complete IT Asset Management solution for pre-existing and new devices, but at this time no award has been made.

Since DOE does not have a system-wide record of the devices requested from and distributed by individual schools to students, there is an increased risk that during School Year 2019-2020 DIIT was delivering devices to students who had already received a device from their schools’ in-house inventory, potentially leaving other students who would have otherwise received devices without one.<sup>5</sup>

## Recommendation

1. DOE should ensure that a central tracking system to account for all devices issued to students is established, regardless of whether they are issued by DIIT or by schools from their in-house inventories.

**DOE Response:** “The DOE agrees with this recommendation, in so far as it reflects current efforts and planning.

The DOE started to address this pre-pandemic, but those efforts were temporarily put on hold to manage the emergency distribution. To support the iPad distribution, DOE built out device tracking and management tools. DOE will use FY22 investments to expand and build upon these tools for other devices.”

## DOE Has Not Formalized Procedures Governing Distribution and Recall of Devices

Comptroller’s Directive #1, *Principles of Internal Control*, states in part, “Internal controls should be documented in management administrative policies or operating manuals.” However, our review found that DOE has not developed written procedures relating to its distribution and recall of remote learning devices. We requested that DOE provide its procedures governing remote learning devices. In October 2020, officials stated that the procedures were undergoing review and revision. In December 2020, officials stated that the procedures will likely be completed post pandemic. In February 2021, DIIT indicated that it is still in the process of developing a formal policy for the recall of devices, including a specific return deadline for students who exited the DOE system at the end of the last school year (June 2020).

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<sup>5</sup> According to DOE, during School Year 2019-2020, DIIT was responsible for validating requests. During School Year 2020-2021, the individual schools were responsible for validating requests, which included confirming that the student had not already been issued a device directly from the school.

In the absence of formal procedures, DOE has limited assurance that the criteria DOE and its individual schools use to determine eligibility of the students who request devices and the process for issuing, tracking, and recalling devices are understood and applied on a consistent basis.

## Recommendation

2. DOE should develop and timely disseminate detailed written policies and procedures governing the agency's management of validating student requests for a device, distributing and tracking those devices, and recalling those devices, including specific return deadlines.

**DOE Response:** "The DOE agrees with this recommendation, in so far as it reflects current efforts and planning.

While the DOE shared guidance with schools continuously throughout the pandemic, the DOE is finalizing formal procedures for device management that take into account experiences necessary to support our students' learning through the pandemic."

## DOE Does Not Perform Ongoing Reviews or Timely Reconciliations of Data Related to the Distribution of Devices

Comptroller's Directive #1, *Principles of Internal Control*, states that management requires operational data to determine whether they are meeting their agencies' strategic goals, as well as achieving their goals for the effective and efficient use of resources. Additionally, Directive #1 states that sound control activities help ensure that all transactions are accurately recorded. However, our review found that DOE does not have an ongoing review process or perform timely reviews or reconciliations of its device distribution and request data. For the fulfillment of requests and the distribution of devices, one of DOE's strategic goals is to ensure that every eligible student who requests a device receives one.

### *Device Distribution Data*

DOE does not have a process for ongoing review of its device distribution data. In addition, DOE did not perform timely reconciliations of its device distribution data to ensure that it is accurate.

According to DOE officials, information for data reconciliation comes from multiple data sources, including Apple and IBM. The officials informed us that, as of November 2020, DOE had not received all the data and invoices from all of its vendors (for devices purchased in April and June 2020) and that there were delays because different batches of devices were purchased at different times and were in different phases of data validation (e.g., either waiting for invoices to be received from Apple or waiting for data from its staging and distribution vendors, IBM and NTT, respectively).

In the absence of a process for ongoing reviews and reconciliations of the relevant data, DOE's ability to produce a reliable listing of the devices distributed and the students to whom they were issued is significantly hindered. In August 2020, we asked DOE to provide us with an itemized listing of remote learning devices that were distributed to individuals who requested them. Then, in October 2020—two months later—DOE informed us that DIIT had distributed 345,097 devices to students from the initial batch of 357,000 devices that it purchased in April and June 2020. However, DOE did not provide an itemized listing at that time by which we could reconcile that figure. Finally, in February 2021—six months after our initial request—DOE provided us with the

dataset for the first batch of 357,000 devices purchased in April and June 2020. Our initial review of this dataset revealed that it was missing two fields we had requested and that it contained anomalies. As a result, DOE provided us with an updated dataset three weeks later.

However, when we compared the original and updated device distribution datasets (provided less than three weeks apart) for the 357,000 devices, we identified certain discrepancies (such as Student IDs and Request IDs appearing in one dataset and not the other) that appear to indicate that this information is still being reconciled—up to a year after the distributions occurred. DOE attributes these discrepancies to two primary factors: a change to the query parameters regarding fulfillment and request data fields; and the continued reconciliation of the data for devices.

In addition, in December 2020, DOE informed us that it purchased an additional 104,000 devices in November 2020. DOE initially indicated that it would not be able to provide data on these devices until early 2021. As of April 2021, DOE had still not provided the data. Since this data was not available as of April 2021, we notified DOE that we could not delay the audit to wait for the data to be provided.

At the end of audit fieldwork—in April 2021—DOE provided us with report templates (absent any data) pertaining to device requests and distributions as evidence that the agency has an ongoing review process. However, we first requested that DOE provide any internal reports it utilizes in connection with its request and distribution processes in August 2020, eight months prior. We do not know when DOE developed these report templates and have no assurance that they were not developed subsequent to our request. Additionally, we did not test the degree to which the reports represented by these templates are actually being utilized by DOE personnel since we were not provided with them until our fieldwork was completed.

In view of the issues discussed above, we do not have assurance that DOE's reported total of devices distributed is reliable. Under these circumstances, DOE has limited assurance that its data accurately reflects the students who received devices and that every student who requested a device received one, as the agency asserts. In addition, there is an increased risk that devices may be lost, stolen, or misappropriated, and such losses—and waste of taxpayer funds—will go undetected.

#### *Device Request Data*

Request IDs are created using Microsoft SQL and are automatically generated when records are created. Each request for a device submitted by a student receives a unique record key, or Request ID.

However, DOE does not have a process for the ongoing reviews and reconciliations of its request data to ensure that the Request IDs for “fulfilled” requests match the Request IDs for “delivered” devices in the device distribution data. Additionally, DOE does not have an ongoing reconciliation review process to ensure that requests that are “under review” and “unresolved” are resolved in a timely manner.

DOE has not demonstrated that it is able to provide a reliable list of all device requests it has received from students. We first asked for a list of all device requests on August 10, 2020. However, DIIT did not provide us with the data until March 25, 2021—seven months after our request. DIIT acknowledged that the data had not yet been reconciled at the time of our initial request but would be once all of the requests were fulfilled. According to DOE, the delay in fulfilling our request was due in part to the agency's efforts to reconcile the data.

However, our review of the data revealed a number of irregularities, indicating that further reconciliation is needed. For example:

- More than 5,000 Request IDs reported as “fulfilled” in the request dataset (meaning a device was sent to the student) are not identified as “delivered” in the list of students to whom devices were distributed. Instead, for each of these students, a different Request ID, listed as a “duplicate request” in the request dataset, was recorded as “delivered” in the dataset of devices distributed. As of May 2021, DOE has not provided an explanation for this discrepancy.
- 137,942 students appear in the data multiple times (anywhere between 2 to 1,547 times). Although DOE stated that duplicate Student IDs are expected because some students may submit multiple requests, it does not explain the instances where the same Student ID appears hundreds, or even as many as 1,547 times.
- As of March 25, 2021, 19,425 requests were still “under review” and “unresolved.” In fact, 16,451 of these requests are from 2020 and date as far back as March 18, 2020. We followed up with DOE regarding these requests, but the agency did not provide an explanation of why these requests have remained “under review” or “unresolved” for such an extended period of time.

Consequently, we have limited assurance that the reported sum total of outstanding requests is reliable and that DOE’s data accurately reflects the students who received devices. As a result, there is an increased risk that devices may be lost, stolen, misappropriated, or distributed to ineligible persons and such losses—and waste of taxpayer funds—will go undetected.

## Recommendations

3. DOE should ensure that its device request data is reconciled to the device distribution data to provide an accurate account for all requests made and for the students who received devices.

**DOE Response:** “The DOE agrees with this recommendation in that it reflects current practice.

This reconciliation process remains an active mitigating control that the DIIT team is executing regularly. We concur that this activity is instrumental to verifying that device request data and distribution data remain accurate and that requests are being met in a timely manner.”

**Auditor Comment:** DOE’s assertion that this recommendation reflects the agency’s current practice is not supported by the evidence provided by DOE in connection with this audit. As stated in the report, we identified a number of irregularities in DOE’s data, including more than 5,000 Request IDs reported as “fulfilled” in the request dataset but not as “delivered” in the distribution dataset, indicating that further reconciliation is needed. Therefore, we urge DOE to implement this recommendation.

4. DOE should ensure that reports are generated from its device request data and reviewed timely so that anomalies in the data are quickly identified and addressed, and that request dispositions are properly classified.

**DOE Response:** “The DOE agrees with this recommendation in that it reflects current practice.

Multiple reports continue to be run, as noted above. The process for reviewing these device request reports remains an active reconciliation process that the DIIT team is executing on in a timely manner. We concur that this activity is instrumental to verifying that device request data and distribution data remains accurate and are continually addressing any anomalies as they are discovered, as noted below in response to recommendation five.”

**Auditor Comment:** DOE's assertion that this recommendation reflects the agency's current practice is not supported by the evidence provided by DOE in connection with this audit. As stated in this report, we identified more than 5,000 Request IDs that were reported as “fulfilled” in the request data yet not identified as “delivered” in the distribution data. However, DOE provided no indication that it was aware of this inconsistency before we discussed it with the agency. Therefore, we urge DOE to implement this recommendation.

5. DOE should ensure that the 19,425 requests that are still “under review” and “unresolved” are investigated to determine whether these students already received devices.

**DOE Response:** “The DOE agrees with this recommendation, as it reflects current practice.

The 19,425 were requests for devices that were under review by schools. All of these requests now have a resolution, and the vast majority of the requests were for devices that were no longer needed.”

**Auditor Comment:** While we are pleased that the 19,425 requests reportedly now have a resolution, this was not the case during the audit scope period (March 2020 through March 2021), although many of these requests had been pending from as early as March 2020. In addition, DOE does not identify how many of these previously-unresolved requests were for devices that were no longer needed.

6. DOE should ensure that it immediately provides devices to the students whose requests are “under review” and “unresolved” if it determines any eligible students are still awaiting a device.

**DOE Response:** “The DOE agrees with this recommendation, as it reflects current practice.

DOE has a process in place to confirm that verified students in need of a device receive that device as soon as possible. This process includes confirming the details of the request prior to taking action.”

**Auditor Comment:** DOE does not indicate when it implemented the above-mentioned process; as indicated by our audit findings, we did not find one in place during the audit scope period. As stated in this report, 19,425 requests were under review since as far back as March 2020 and DOE does not indicate how many of these requests were verified as students needing devices.

## Deficiencies in DOE's Management of Control Numbers

According to the U.S. Government Accountability Office's (GAO's) *Internal Control Management Evaluation Tool*, agencies should employ control activities for information processing, such as accounting for transactions in numerical sequence, to ensure the accuracy and completeness of

their records. Additionally, according to Comptroller's Directive #30, *Capital Assets*, capital equipment inventory items must bear property identification tags that include a sequential internal control number assigned to each item.<sup>6</sup>

### *Request IDs*

We identified gaps in the sequential numbering of requests for remote learning devices. In August 2020, we requested from DOE the full dataset of requests submitted from the beginning of remote learning (March 2020). On March 25, 2021, DOE provided us with its dataset for all such requests submitted as of that date. However, our review of that data revealed 18,597 missing Request IDs (gaps ranging from 1-999).

From our review it appears that while DOE uses Microsoft SQL to generate Request IDs that are unique numbers, its system does not necessarily issue them in sequential order. When Request IDs are not issued in sequential order, the risk that DOE will be unable to identify requests that were not recorded or were deleted inappropriately is increased.

### *Asset Tags*

DOE did not adequately control the tag numbers assigned to iPads to ensure that all numbers were sequentially assigned and accounted for. Our review of the dataset for the 357,000 devices that DOE purchased in April and June 2020 revealed that DOE uses a different asset tag numbering sequence for each batch of devices it receives from its staging vendor.<sup>7</sup> Moreover, our review uncovered substantial gaps in the sequential numbers of asset tags within each batch of devices that DOE denoted with Batch IDs. In total, 130,674 sequential asset tag numbers were missing.

DOE officials originally named a number of possible explanations (e.g., different locations using different rolls of tags, damaged or misprinted tags, etc.) for the gaps. However, DOE officials later indicated their policy does not require asset tags to be sequential. Failure to properly assign asset tag numbers in sequential order greatly diminishes the effectiveness of identification tags as a control mechanism. In the absence of the assignment of sequential tag numbers, it is difficult for DOE to monitor, track, and account for all iPads, which increases the risk that such items could be stolen or lost without detection.

## **Recommendations**

7. DOE should ensure that Request IDs are issued in sequential order and tracked, and that any gaps in these numbers are investigated in a timely manner and the reasons for them adequately documented.

**DOE Response:** "The DOE does not agree with this recommendation.

As noted above serialized request data is not required or helpful in identifying gaps or investigating gaps in a timely manner."

**Auditor Comment:** We disagree with DOE's assertion. By issuing Request IDs in sequential order, DOE can readily identify and investigate anomalies such as a request that was erroneously omitted by running a report that identifies gaps in the numbering sequence. DOE fails to identify an alternate process by which it

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<sup>6</sup> According to DOE officials, iPads purchased for remote learning were purchased with capital funds and are designated as capital assets.

<sup>7</sup> Devices are shipped to DOE's staging vendor, IBM, in batches. DOE assigns each batch its own Batch ID.

ensures that all requests are accounted for. In the absence of such a process, we urge the agency to reconsider and implement this recommendation.

8. DOE should modify its policy to ensure that asset tag numbers are issued in sequential order and tracked, and that going forward, any gaps in these numbers are investigated in a timely manner and the reasons for them adequately documented.

**DOE Response:** “The DOE does not agree with this recommendation.

As noted above serialized asset data is not required or helpful in identifying gaps or investigating gaps in a timeline [*sic*] manner. Additionally, serialized asset tag data would not have been feasible and would have created technical challenges that would have significantly delayed the delivery of iPads to students. Non-sequential asset tags were expected and part of the original plan due to the fact that “asset tagging” needed to be performed at numerous locations by different subcontractors of our primary staging vendors. Because of this, each subcontractor had multiple tables in use, all running in parallel, to meet the pandemic response objectives and delivery targets. Additionally, some tag numbers were not utilized due to damage, misprinting, or loss. However, the primary unique device identifiers remained unique as was explained to the Comptroller.”

**Auditor Comment:** DOE fails to explain its basis for asserting that serial (i.e., sequential) tag numbers are not helpful in identifying gaps in such numbers. DOE’s argument that sequential asset tag data would not be feasible is unpersuasive. To help facilitate asset tagging, DOE could employ multiple series of sequential tag numbers by location and/or subcontractor.

DOE’s further assertion that non-sequential asset tags were part of DOE’s “original plan” contradicts the agency’s written statement to us during the audit, in which officials asserted that, “iPads are tagged sequentially as they are produced/worked on.” Finally, DOE does not support its argument that its use of *non-sequential* unique identifiers makes *sequentially numbered* unique identifiers unnecessary. Sequentially numbered asset tags facilitate prompt identification of devices that are unaccounted for based on gaps in tag number sequences. As discussed in this report, the assignment of asset tag numbers in non-sequential order diminishes their effectiveness as a control mechanism. Therefore, we urge DOE to reconsider and implement this recommendation.

## Unable to Assess Whether DIIT’s Controls over Distribution Operate as Intended

DOE developed controls that, if functioning as designed, may provide reasonable assurance that DIIT will not issue more than one device to a student. However, due to the lack of reliability that we found in DOE’s data discussed earlier, we were not able to test the degree to which these controls are in fact operating as intended.

DOE’s policy has been to issue only one iPad per student. During School Year 2019-2020, since the beginning of remote learning, DOE had a control in place that once a request was submitted to DIIT, it had to be validated by DOE centrally to ensure that the student had not already been issued a device from DIIT. This process pertains only to DIIT-issued iPads, and does not prevent a student from receiving both a school-issued and DIIT-issued device. We attempted to ascertain

the degree to which DOE's controls were operating effectively but were unable to do so with reasonable assurance due to the data deficiencies discussed earlier in this report, particularly the lack of ongoing reviews and reconciliations for device request data and device distribution data.

Based on a review of the original device distribution data pertaining to the 357,000 devices DOE purchased in April and June 2020, we initially identified approximately 700 instances where it appeared that more than one device was issued to the same student. Moreover, in a March 2021 email, DOE officials stated that 3,045 students are recorded as receiving more than one device. However, we are unable to identify:

- the number of devices that were shipped to these 3,045 students;
- the number of devices that were shipped to all of the students who received a device from DIIT; and
- the total number of students who were issued devices from DIIT.

DOE stated that the devices were shipped in error to these 3,045 students due to inaccuracies in the ship lists (which identify students who should receive a device) that DIIT provided to the distributor (NTT) or as a result of errors made by the carrier when distributing devices. We asked DOE for a breakdown of the number that fell into each category but have not received the information as of May 2021. According to DOE, it is still "actively working ... on gathering this data."

According to DOE, as of March 5, 2021, 2,686 devices have been returned or are in the process of being returned by the students who received more than one device. DOE informed us that those devices will either be returned to inventory or assigned to other students. However, DOE did not provide evidence (such as a listing of the returned devices reflecting their disposition) to enable us to reconcile this figure and identify the number of devices that were returned to inventory and the number assigned to new students.

## Recommendations

9. DOE should take steps to ensure that the remaining devices that were shipped to students in error are returned and put back into inventory to be distributed if needed.

**DOE Response:** "The DOE agrees with this recommendation.

DOE is currently executing this process. Our vendors and the schools both execute pick up and outreach activities to students and families as necessary."

10. DOE should take appropriate action where devices have not been returned, including referring matters to the agency's investigative units or DOE's Special Commissioner for Investigation when warranted.

**DOE Response:** "The DOE agrees with this recommendation in that it reflects current practice.

DOE has a process in place for these situations which includes that any device not recovered will be locked, geo-located and reported to NYPD. DOE initiates this process on an ongoing basis."

## DETAILED SCOPE AND METHODOLOGY

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. This audit was conducted in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

The scope of the audit was from March 2020 through March 2021.

To evaluate DOE's controls over its handling of the distribution and oversight of remote learning devices to public school students, we interviewed the Division of Instructional and Information Technology's Chief Technology Officer, Deputy Chief Information Officer Strategy and Governance, Senior IT Governance Officer, Executive Director, Hosting Internet and Datacenter Tech, Director of Network Infrastructure Deployment, and Executive Director of Applications Operations. We also interviewed the Executive Director of the Research and Policy Support Group and the Director of The Bronx Plan.

To assess the adequacy of DOE's internal controls as they related to our audit objective, we reviewed and used as criteria the following:

- Comptroller's Directive #1, *Principles of Internal Control*;
- Comptroller's Directive #30, *Capital Assets*;
- GAO's *Internal Control Management Evaluation Tool*;
- DoITT's *Citywide Policy for Asset Management* as of July 2013;
- DOE's *Device Demand Information, Request and Distribution Processes, and Application Screenshots*;
- *Request an iPad* - online request form, *Student Device Agreement*, and *Eligibility, iPad Distribution, iPad Returns* pages on DOE's website;
- Staging Diagram Overview - *Carrier eSIM/SIM Activation Process w/Microsoft Intune*;
- DOE's *iPad Invoice Payment Process*; and
- DOE's response to Comptroller Letter regarding Students in Temporary Housing.

To assess the reliability of the datasets for audit testing purposes, we ran various sorts and queries on the various datasets to identify potential anomalies, including duplicates, gaps, and blank records in the request and the device distribution datasets.

To determine whether the Student IDs matched between the original dataset provided on February 10, 2021 and the updated dataset provided on March 5, 2021, we removed 2,538 duplicate Student IDs from the 337,304 in the original data and 1,227 duplicate Student IDs from the 334,618 in the updated data, and were left with 334,766 and 333,391 Student IDs, respectively. We then compared the Student IDs between the two datasets.

To determine whether the Request IDs matched between the original dataset provided on February 10, 2021 and the updated dataset provided on March 5, 2021, we removed 2,538

duplicate Request IDs from the 337,247 in the original data and 553 duplicate Request IDs from the 332,005 in the updated data, and were left with 334,709 and 331,452 Request IDs, respectively. We then compared the Request IDs between the two datasets.

To determine the number of requests that were “under review” and “unresolved” based on the request dataset provided on March 22, 2021, we filtered the data related to these two dispositions.

To determine whether the Request IDs with a disposition of “fulfilled” in the request dataset provided on March 22, 2021 matched the Request ID containing a disposition of “delivered” in the device distribution dataset provided on March 5, 2021, we filtered out blanks from “Request ID” from the device distribution data and were left with 332,005 records. Then we filtered out blanks from “Fulfillment Status” and were left with 330,085 records. We then compared the Request IDs in the request data to the Request IDs in the device distribution data.

These results of the above tests provided a reasonable basis for us to determine whether DOE has adequate controls over the distribution of remote learning devices.



June 15, 2021

Marjorie Landa  
Deputy Comptroller for Audit  
The City of New York  
Office of the Comptroller  
One Centre Street  
New York, NY 10007-2341

**Re: Audit Report on the Department of Education's  
Controls over the Distribution of Remote  
Learning Devices - MD21-061A**

Dear Ms. Landa:

This letter will serve as the New York City Department of Education's (DOE) formal response to the New York City Office of the Comptroller's (Comptroller) draft audit report on the DOE's Controls over the Distribution of Remote Learning Devices (Report). The DOE agrees with the majority of the findings and recommendations.

As the Comptroller noted in the Report, DOE was forced to close our schools and transition to a remote learning model for all students in March 2020. Due to the fact that many students did not have a learning device or access to the internet, the DOE's Division of Instructional and Information Technology (DIIT), in collaboration with the City's Department of Information Technology and Telecommunications (DoITT) worked quickly to procure, stage, and distribute internet-enabled iPads to the hundreds of thousands of students who needed them to ensure each student could continue learning throughout the pandemic. The DOE's goal has been to ensure that devices were distributed equitably so all students in need of a device would receive a device to participate fully in their classes and programs. DOE teams worked around the clock to meet the distribution needs of our students.

In response to the Comptroller's statements regarding timely reviews of device-related data, the DOE utilized numerous specialized data queries to review data on a near hourly basis from the start of the pandemic. The DOE held daily meetings with staff and senior management to review device request and supply chain data to fulfill the requests. These activities included: a) reviewing data related to projected delivery dates of devices and SIM cards from manufacturers, b) the capacity and daily throughput of our staging vendors, and c) the delivery of devices by third-party carriers, either directly to students or schools. Samples of these reports were shared with the Audit team. Additionally, the DOE is in the process of formalizing current operational activities into an updated Standard Operating Procedure (SOP) that clearly outlines the roles, activities, and governance of devices which include the distribution and request activities going forward. These processes and tools allowed the DIIT team to identify and adopt process improvements throughout the pandemic's initial stage and meet targets for shipping iPads to students.

Regarding request IDs and asset tagging operations, the DOE utilizes a demand management system and enterprise device management tool, negating the need for specific legacy inventory management protocols such as sequential manually-applied asset tags or sequential request ID numbers. Thus, the DOE does not concur with the recommendation that request IDs or asset tag numbers be sequential to ensure all requests and devices received are adequately documented with unique identification numbers. The demand and device management systems provide unique identifiers that fulfill the control objective to track each request received and device received and distributed.

The DOE did receive multiple device requests from individual students but had mitigating controls in place at critical points in the process to ensure that students received only one device, even if they submitted multiple requests. The DOE is continually improving governance and controls over the request management process and will continue to weigh the impact on students should additional measures be added.

## **Responses to Recommendations**

**Recommendation 1:** *DOE should establish a central tracking system to account for all devices issued to students, regardless of whether they are issued by DIIT or by schools from their in-house inventories.*

**Response:** The DOE agrees with this recommendation, in so far as it reflects current efforts and planning.

The DOE started to address this pre-pandemic, but those efforts were temporarily put on hold to manage the emergency distribution. To support the iPad distribution, DOE built out device tracking and management tools. DOE will use FY22 investments to expand and build upon these tools for other devices.

**Recommendation 2:** *DOE should develop and timely disseminate detailed written policies and procedures governing the agency's management of validating student requests for a device, distributing, and tracking those devices, and recalling those devices, including specific return deadlines.*

**Response:** The DOE agrees with this recommendation, in so far as it reflects current efforts and planning.

While the DOE shared guidance with schools continuously throughout the pandemic, the DOE is finalizing formal procedures for device management that take into account experiences necessary to support our students' learning through the pandemic.

**Recommendation 3:** *DOE should ensure that its device request data is reconciled to the device distribution data to provide an accurate account for all requests made and for the students who received devices.*

**Response:** The DOE agrees with this recommendation in that it reflects current practice.

This reconciliation process remains an active mitigating control that the DIIT team is executing regularly. We concur that this activity is instrumental to verifying that device request data and distribution data remain accurate and that requests are being met in a timely manner.

**Recommendation 4:** *DOE should ensure that reports are generated from its device request data and reviewed timely so that anomalies in the data are quickly identified and addressed, and that request dispositions are appropriately classified.*

**Response:** The DOE agrees with this recommendation in that it reflects current practice.

Multiple reports continue to be run, as noted above. The process for reviewing these device request reports remains an active reconciliation process that the DIIT team is executing on in a timely manner. We concur that this activity is instrumental to verifying that device request data and distribution data remains accurate and are continually addressing any anomalies as they are discovered, as noted below in response to recommendation five.

**Recommendation 5:** *DOE should ensure that the 19,425 requests that are still "under review" and "unresolved" are investigated to determine whether these students already received devices.*

**Response:** The DOE agrees with this recommendation, as it reflects current practice.

The 19,425 were requests for devices that were under review by schools. All of these requests now have a resolution, and the vast majority of the requests were for devices that were no longer needed.

**Recommendation 6:** *DOE should ensure that it immediately provides devices to the students whose requests are "under review" and "unresolved" if it determines any eligible students are still awaiting a device.*

**Response:** The DOE agrees with this recommendation, as it reflects current practice.

DOE has a process in place to confirm that verified students in need of a device receive that device as soon as possible. This process includes confirming the details of the request prior to taking action.

**Recommendation 7:** *DOE should ensure that Request IDs are issued in sequential order and tracked, and that any gaps in these numbers are investigated in a timely manner and the reasons for them adequately documented.*

**Response:** The DOE does not agree with this recommendation.

As noted above serialized request data is not required or helpful in identifying gaps or investigating gaps in a timely manner.

**Recommendation 8:** *DOE should ensure that asset tag numbers are issued in sequential order and tracked, and that any gaps in these numbers are investigated in a timely manner and the reasons for them adequately documented.*

**Response:** The DOE does not agree with this recommendation.

As noted above serialized asset data is not required or helpful in identifying gaps or investigating gaps in a timeline manner. Additionally, serialized asset tag data would not have been feasible and would have created technical challenges that would have significantly delayed the delivery of iPads to students.

Non-sequential asset tags were expected and part of the original plan due to the fact that "asset tagging" needed to be performed at numerous locations by different subcontractors of our primary staging vendors. Because of this, each subcontractor had multiple tables in use, all running in parallel, to meet the pandemic response objectives and delivery targets. Additionally, some tag numbers were not utilized due to damage, misprinting, or loss. However, the primary unique device identifiers remained unique as was explained to the Comptroller.

**Recommendation 9:** *DOE should take steps to ensure that the remaining devices are returned and put back into inventory to be distributed if needed.*

**Response:** The DOE agrees with this recommendation.

DOE is currently executing this process. Our vendors and the schools both execute pick up and outreach activities to students and families as necessary.

**Recommendation 10:** *DOE should take appropriate action where devices have not been returned, including referring matters to the agency's investigative units or DOE's Special Commissioner for Investigation when warranted.*

**Response:** The DOE agrees with this recommendation in that it reflects current practice.

DOE has a process in place for these situations which includes that any device not recovered will be locked, geo-located and reported to NYPD. DOE initiates this process on an ongoing basis.

The DOE team has worked closely with the Comptroller and responded with detailed responses and reports throughout the audit process. DIIT continues to implement improvements and enhancements throughout our processes as identified. Collectively, the knowledge gained from our experience responding to the pandemic has informed our device management and digital learning approaches, positioning the DOE to continually provide quality learning experiences for all students.

Thank you again for your support with these efforts.

Sincerely,

A handwritten signature in cursive script that reads "Lauren Siciliano".

Lauren Siciliano  
Chief Administrative Officer