SOUNDTRANSIT

Audit Report

Executive Summary

WE AUDITED the current IT Asset Management (or ITAM) process to assess whether controls in place are effective in ensuring assets are managed, reconciled and tracked for completeness and accuracy in accordance with agency policies and procedures.

Our **AUDIT OBJECTIVE** was to determine whether the agency has effective controls in place to ensure the following:

- IT inventory records are identified, reconciled, and tracked for completeness and accuracy.

- IT assets are appropriately managed in compliance with applicable agency policies and procedures.

The audit examined management controls in place as of August 31, 2020.

Patrick Johnson

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WHAT WE FOUND

Sound Transit (ST or Agency) has grown over the last decade, further driving the need for the agency to increase its resources in IT assets (e.g. hardware, network, server, and software).

From 2018 to 2019, the agency's IT assets expenditures increased by 36%, going from $4.2 million (M) in 2018 to $5.7M in 2019. However, as of August 2020, IT assets expenditures were just $2.9M (if annualized, only $4.4 million). Additionally, IT Fixed Assets expenditures from 2019 to August 2020 were approximately $10.6M, of which ~81% were attributable to software.

IT Asset Management supports key business operations; ensures controls are functioning and present over the IT asset management lifecycle; and streamlines process inefficiencies while minimizing costs. In 2019, the agency's ITAM framework comprised of key processes and the ServiceNow system (IT asset repository) to provide better management of business disruption and maintain the service environment.

As part of our 2020 Audit Plan, we identified IT Asset Management as an area of risk due to the following:

- The need for resources due to increased IT Activities at the agency presented an opportunity to ensure appropriate controls are in place and operating as expected.
- Issues from prior audits, specifically the IT Asset Management audit completed in 2018.
- Potential risks related to IT Asset Management, identified during two audits completed earlier in 2020. One on Information Security Governance and Consultant On/Off Boarding.

Our audit concluded that the agency has inadequate controls over providing reasonable assurance that IT asset listing is complete and accurate and managing IT assets in compliance with applicable agency policies and procedures.
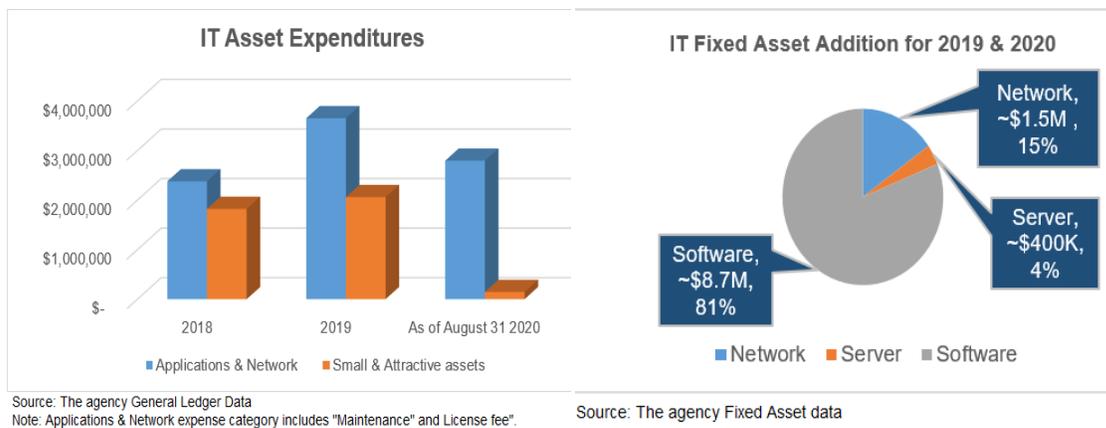
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Background

Sound Transit (ST or Agency) has grown over the last decade, further driving the need for the agency to increase its resources in IT assets (e.g. hardware, network, server, and software). IT Asset Management (or ITAM) supports key business operations; ensures controls are functioning and present over the 'IT asset management lifecycle'; and streamlines process inefficiencies, while minimizing costs. As such, it is imperative that the agency implements robust ITAM practices to better manage business disruption, and maintain the service environment.

From 2018 to 2019, the agency's IT asset expenditures increased by $1.5 M (or 36%) going from $4.2M in 2018 to $5.7M in 2019[1]. Addition to IT Fixed Assets from 2019 to August 2020, were approximately $10.6M, of which ~81% were attributable to software.

Source: The agency General Ledger Data
Note: Applications & Network expense category includes "Maintenance" and License fee".

Source: The agency Fixed Asset data

In 2018, the Audit Division conducted its initial review of ITAM and concluded that the agency lacked an existing ITAM (e.g. asset definitions, staff/roles responsibilities, and configuration attributes) to reasonably ensure the integrity of the IT assets. Since then, the agency established its' ITAM framework[2] (e.g. Processes and IT tools) through the implementation of the 'ServiceNow' system (the system) in 2019. ServiceNow is the agency's web-based tool for managing IT services (e.g. service & task ticket) and IT asset management (e.g. IT asset data repository).

The agency also leverages its 'discovery tool'[3] in the system, which tracks the applications (e.g. software) and hardware (e.g. server, network, computers etc.) on the agency's network and then updates IT assets inventory list in the system. Once updated, IT staff verifies the asset status and manage the lifecycle of the IT assets. IT staff physically

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1 Application & Network costs including software licensing maintenance increased ~$1.3 million (or 41%) from 2018 to 2019. The average expenditures for IT small & attractive assets (e.g. Desktop, Laptops, Monitors, TV etc.) was ~$1.9 million for last two years.
2 To increase the maturity level of ITAM and response to the former Internal Audit's ITAM audit in 2018, ST IT implemented 'Service Asset & Configuration Management' standard and process document in 2019.
3 'Discovery tool in ServiceNow identifies the devices such as laptops, desktops, servers (physical and virtual), switches, routers, storage, and applications (software), connected to the agency's network and update the IT asset database in ServiceNow. In addition, ST IT utilizes the tool to continuously monitoring the status of IT assets.

verifies the small & attractive assets[4] on an annual basis (e.g. TV, conference room camera, monitor, etc.), not connected to the agency's network, and manually updates in the inventory list. Thus, ServiceNow in combination with discovery tool provides for more accurate information related IT assets (inventory, location, and status), and allows for the optimization of assets with effective management.

Moreover, the agency's IT department is subject to audits and annual assessments performed by the external consultant and ST's Audit Division. Information Security (or InfoSec), serving as the agency's IT risk management function and IT audit liaison, schedules annual reviews and ISO compliance audits. In its recent 'Information Security compliance assessment report[5](dated, October 2020)' the external consultant rated the agency's maturity level (specific to ITAM) at 3.1, increasing from 2.4 within a four-year period. The auditor observed several updates to system modules to include security operations, ITAM, and governance risk and compliance last 12 months. Overall, the assessment yielded an increase in maturity level to 3.5 out of a possible score of 5 (defined and managed) and is recognized by the external assessors as industry standards given ST's size and complexity.

Audit Objectives

To determine if the agency has effective controls over the IT asset management process in ensuring:

- IT inventory records are identified, reconciled, and tracked for completeness and accuracy.

- IT assets are appropriately managed in compliance with applicable agency policies and procedures.

Scope and Methodology

We conducted this performance audit in accordance with the Generally Accepted Government Auditing Standards (GAGAS) and International Standards for the Professional Practice of Internal Auditing (IPPF). Those standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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4 The agency's small & attractive asset policy #32 requires the annual physical count of inventory. However, the agency waived 2020 physical inventory count for IT small & attractive assets due to Covid-19. The physical inventory and reporting for all small and attractive assets agency-wide will be scheduled for 2021 dependent upon the directive of the Governor and Sound Transit's return to work phase.

5 The third party consultant performs the compliance assessment annually. The maturity level 3 defined in this report was that ST IT formalized the IT process, performed risk assessment, and complied with requirements. ST IT is working on achieving the next maturity of level that requires measuring the formalized process and controls.

We gained an understanding of the IT asset management process at the agency through data analysis, observation, documentation reviews, and personnel interviews. We identified risks in the processes and assessed management controls in place to mitigate those risks. Based on our assessment of management control effectiveness, we focused on management controls over IT inventory records to determine whether assets were identified, reconciled, and tracked for completeness and accuracy; and appropriately managed in compliance with applicable agency policies and procedures.

We examined the process for the period of performance as of August 31, 2020; and current IT asset management controls in place.

Objective 1:

To determine whether the agency has effective controls to ensure IT inventory records are identified, reconciled, and tracked for completeness and accuracy, we conducted the following:

   a. We selected 19 out of 124 (or 15%) purchase orders from 2019; and 12 out of total 54 (or 22%) purchase orders from August 31, 2020, approximately $1.4 million IT assets expenditures (or 945 new IT assets purchased) and compared them to IT asset inventory listing to determine if new assets were properly recorded/reconciled.

   b. We selected all new IT fixed asset additions from 2019 & August 31, 2020, approximately $4.2 million hardware, and $8 million software and compared to IT asset inventory listing to determine if new assets were properly recorded/reconciled.

   c. We reviewed 'Required Attributes' for IT asset inventory listings of Network, Server, and Workstation to determine if the current status of IT asset such as general, financial, disposal, contract information were documented in the IT asset inventory listing.

   d. We selected samples of 76 out of 512 (or 15%) disposal assets from network, servers, and workstation (e.g. desktop, laptop) from the IT asset inventory listing (as of August 31, 2020) to determine if disposed assets were properly recorded/reconciled, and appropriately managed in compliance with applicable agency policies and procedures.

Objective 2:

To determine whether the agency has effective controls to ensure IT assets are appropriately managed in compliance with applicable agency policies and procedures.

   a. We reviewed Exit tickets in the ServiceNow database between October 19, 2019 to September 9, 2020 (total of 161 Exit tickets) to verify if the loaned IT asset from terminated employees or consultants were recovered timely and the status of the asset was updated in the IT asset inventory listing.

Conclusion

Our audit concluded that the agency has inadequate controls over providing reasonable assurance that IT asset listing is complete and accurate and managing IT assets in compliance with applicable agency policies and procedures. See **Finding #1**.

Findings and Recommendation

1. **Agency has inadequate oversight over its IT asset management process**

The agency's policy related to IT Asset Management (ITAM) process, 'Service Asset & Configuration Management' requires Sound Transit (ST or Agency) to maintain accurate information of assets to make effective IT asset management and lifecycle decisions.

In response to a previous Audit of ITAM audit in 2018, ST IT implemented the 'ServiceNow' database to have a centralized IT assets repository in 2019. The implementation of an enterprise-wide ITAM system allows IT to support the achievement of business objectives by ensuring:

- Accurate information of IT assets for enhanced control over assets and deliver better customer satisfaction,
- Increased reliability of IT asset data for issue and problem management,
- Cost effective investment on assets and achieving maximum return on investments while reducing operating costs, and
- Increased Information Security practices and compliance with regulation.

The process requires maintaining accurate and updated information of IT assets in the centralized IT assets' repository. Specifically:

- Network (e.g. routers, switches, firewalls)
- Servers (e.g. physical and virtual servers)
- Application (e.g. software package, licenses)
- IT Small & Attractive assets (e.g., laptops, desktops, monitors, TVs, Conference room cameras/projectors, desk/conference room phones etc.)

However, based on our review, we noted that there was inadequate monitoring controls over IT assets, resulting the following deficiencies related to: (1) incomplete IT asset inventory listing, (2) inadequate controls over the disposal of workstation assets (e.g. laptops and desktops), and (3) lack of recovering IT assets procedures.

The preceding deficiencies above occurred due to inadequate monitoring controls to ensure periodic reconciliation of IT asset inventory listings; proper receipt of refund checks for the full residual amount; and lack of specific procedures related to the recovery of IT assets from terminated employees and/or consultants.

Incomplete IT asset inventory listing

'Service Asset & Configuration Management' standard[6] requires ST IT to provide accurate and complete information of assets such as inventory, location, and status, to monitor and safeguard IT assets. In addition, Agency Policy 32 - "Small and Attractive Assets" (e.g., monitors, TVs, conference room cameras/projectors, desk/conference room phones, cell phones) further requires that the department/division prepares and maintains the complete list of these items each year within the department/division.

To provide the accurate and complete IT asset inventory listings, ST IT maintains the central repository ('ServiceNow') and periodically reviews and verifies inventory completeness and accuracy.

For this audit, we sampled 31 IT assets' purchased orders (PO) and tested against supporting documentation (e.g., invoices) from 2019 & 2020. Of the 31 POs reviewed, we identified 945 individually identifiable (serialized) assets. We compared those assets to the current IT asset inventory listings provided by IT to determine whether all assets were recorded accurately. Based on our review, we noted the following exceptions:

- While we were able to review certain small and attractive assets from workstation asset inventory listing (total of 3,301 workstation assets), the remaining small and attractive assets (e.g., monitors, TVs, conference room cameras/projectors, desk/conference room phones, cell phones, etc.) inventory listings were not available for testing.

- 227 out of 945 (or 24%) IT assets identified on invoices were not found in the IT assets inventory listing as shown in the table below. The below IT assets (Desktop, Network system) were not connected to the agency's network yet.

IT assets not found in the Asset Inventory Listing	Number of Assets	Total Value on Invoices
Desktop	50	$47,833
TVs & Monitors	30	$28,664
Desk/Conference room phones	139	$75,345
Network system	8	$287,023
Subtotal	227	$438,865
Total Serialized Assets	945	$1,419,509

Moreover, while information provided by Accounting indicated that 147 new-fixed assets' additions in IT hardware and 29 software (license requirements) in 2019 & 2020, we noted the following:

- Overall, software inventory listing was not available for testing at time of audit thus

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[6] Service Asset & Configuration Management' Standard: Section 1.1 Page 4

we were not able to compare software additions to the IT asset inventory listing. Total software addition was approximately $8M.

- 75 out of 147 (or 51%) total IT hardware fixed assets additions were not found in IT asset inventory listings (servers (29), TV & monitors (11), and network (35)), estimating $3.4M.

The conditions above occurred due to inadequate monitoring controls to ensure periodic reconciliation of asset listings between departments and IT (e.g., physical counts, purchase orders, etc.). While the agency's discovery tool identifies IT assets on the agency's network, control activities should be improved to detect IT assets that are not connected to the agency's network. Additionally, IT staff were not assigned to manage certain asset groups (e.g. software and small & attractive assets) when the implementation of the 'ServiceNow' system.

Due to insufficient physical counts and untimely updates of IT attribute listings, IT small and attractive assets and software were not adequately maintained in 'ServiceNow' system. Overall, incomplete IT Asset inventory listing will result in inaccurate assets' information and diminish the agency's ability to perform proper lifecycle management of IT assets.

Inadequate controls over the disposal of workstation assets

Managing IT asset lifecycle from acquisition to disposal is an essential part of ITAM process, 'Service Asset & Configuration Management' process[7] document, requires that the retired assets should be properly disposed or recycled.

Specific to IT workstation assets (e.g., desktops, laptops etc.), ST IT makes a decision of retiring the assets based on the warranty expiration date. ST IT contracted with a third party vendor to dispose of the assets and the vendor provides a refund to the agency to each asset based on the determined residual value[8].

We reviewed 76 of total 512 (or 15%) disposed assets from networks, servers, and workstations (e.g., desktops, laptops, etc.) from IT asset inventory listing. Specific to our testing, the 'disposal workstation assets 'residual value was $ 28,753 for the period of December 2019 to August 2020. We found the following:

- While management provided documentation evidencing a partial refund received totaling $14,404, the remaining $14,349 of the total of residual value ($28,753) could not be verified. However, management confirmed that the remaining refund balance was collected from the third party vendor as the audit progressed. The monitoring control over ensuring to collecting residual value refund is still deficient. See summary of the testing below:

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[7] Service Asset & Configuration Management' process: Section 2.4.11 Page 15
[8] The residual value of an asset is the estimated amount that an asset's owner would earn by disposing of the asset, less any disposal cost.

	Disposal date	Residual value receivable from a third party vendor
Residual value from the disposal assets (IA disposal sample testing)	12/17/2019	$1,779
	1/21/2020	$5,130
	3/18/2020	$4,638
	4/9/2020	$2,030
	8/11/2020	$15,175

Total residual value receivable from a third party vendor	$28,753

	Check received date	Residual value check amount
Residual value received from a third party vendor (IA verified the check received with Cash Accounting division)	7/15/2020	$11,974
	8/10/2020	$51
	8/10/2020	$2,379

Total residual value check received from a third party vendor (as of 10/15/2020)	$14,404
Total residual value check NOT received from a third party vendor (as of 10/15/2020)	$14,349

The condition above occurred due to insufficient monitoring controls in ensuring accountability for the proper receipt of refund checks for the full residual amount. ST IT retired 500 workstation assets (372 Desktops and 128 Laptops) in both 2019 and 2020. In addition, over 1,975 workstation assets, (629 Desktops and 1,346 Laptops) could be potentially retired in the next 5 years since the warranty services will expire. As such, enhancing monitoring controls for the proper receipt of refunds for residual amount is inevitable.

Workstation Asset Category	Number of Retired Assets		Number of Assets to expire from warranty services				
	2019	2020	2020	2021	2022	2023	2024
Desktops	13	359	227	72	23	230	77
Laptops	33	95	240	199	635	272	-
Total	46	454	467	271	658	502	77

Source: IT Workstation Inventory listing provided by ST IT as of August 31 2020.

Moreover, we noted process deficiencies related to inadequate 'segregation of duties' related to the approval, custody (in-take), recordkeeping, and reconciliation of IT assets. Specifically, the responsibility of acquiring, managing, and disposing of workstation assets

is currently assigned in one employee where these duties should be separated for effective asset management control. Interviews with IT staff indicated that the lack of segregation of duties was primarily attributable to insufficient staffing resources. As such, if segregation is not in place due to resource challenges, there should be an increased level of compensating controls (e.g., supervisory review and approval prior to intake and/or disposal of assets) to prevent risk of fraud (e.g., concealment or misappropriation of assets).

Lack of recovering IT assets procedures

ST IT Desktop Service division (or Desktop Service) recovers assets (e.g. laptops) from terminated employees or consultants. The event is triggered when a supervisor or a manager of the terminated employee or consultant creates an 'Exit Ticket' through 'ServiceNow'. This prompts "Desktop Service" to then retrieve the asset.

While the process is absent procedures for recovering IT assets, management indicated that assets should be recovered within a three-day timeframe. This timeframe appears to be the appropriate amount of time for recovering the asset for the effective utilization of the asset.

However, based on our review of 161 exit tickets[9] and user information relative to the recovery of equipment/assets for the period of October 19, 2019 to September 9, 2020, we found the following issues:

- 71 tickets out of total 161 tickets sampled (or 44%) took four or more days to close, with the longest duration being 112 days. This is indicative that assets may not have been retrieved for the preceding range of delinquent days, or the exit ticket was not timely closed although the asset was recovered (as shown in the table below). This could affect the updating the status of IT assets in the inventory listing and lead to ineffective utilization of the asset.

Days from Open Ticket to Complete Ticket	Number of Complete Tickets	% of Total Ticket Completion
0-2 days	72	45%
3 days	18	11%
4-25 days	50	31%
26-50 days	16	10%
51-100 days	3	2%
over 100 days	2	1%
Total testing	161	

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[9] The exit ticket may be opened prior to or after the employee's termination date. We compared the "Opened" dates to the "Updated" date for each task related to recovering assets from a user to determine whether assets were recovered in a timely manner. The "opened" date is the date the individual task was opened. In some cases, child tasks may indicate the completion of recovering the asset. The "Updated" date represents the date/time of the last action related to the task - generally closing the task and changing the status to "close complete".

Furthermore, we noted that exit tickets have insufficient IT asset information such as the termination date of employment (or contract), location, asset tag numbers or the name of the assignment. Specifically:

- 52% (or 84 out of 161 exit tickets) did not contain asset tag numbers and assignment of usernames.

Moreover, management indicated that 21 laptops were recorded as 'Missing' in IT workstation assets inventory listing, representing a total value of $24,000. We noted those laptops were considered not recovered.

The untimely close-out of assets issues can be attributable to the lack of specific procedures (e.g., requirement of exit ticket) related to the recovery of IT assets from terminated employees and/or consultants. As such, information retrieved from the exit tickets remains incomplete, further impeding the agency's ability to properly locate IT assets and track assigned to employees.

Timely collection of items also helps ensure that assets are efficiently re-purposed for use by another user (if needed). Assets not collected timely (or at all) can increase costs to the agency; and are prone to misuse, theft, and misappropriation.

Recommendations

We recommend IT management to:

- Assign responsible IT staff to manage IT asset inventory listings (including small & attractive asset and software license requirements), currently not created in 'ServiceNow'.

- Develop periodic reconciliation procedures for IT asset inventory listing in combination with other controls (e.g., physical counts, etc.) for completeness and accuracy.

- Establish and regularly review of IT asset status reports (e.g., IT Asset exception reports, attributes reports, etc.) to increase oversight of IT asset management processes.

- Implement segregation of duties and/or compensating controls for acquiring, reconciling, and disposing of assets.

- Increase monitoring efforts of residual value refunds from the third party vendor to ensure the refund checks are deposited to the agency.

  o Enhance communication with ST Treasury division to ensure receivables are being claimed from third party vendors in a timely manner for disposal of assets.
  o Perform a review of disposed assets to ensure all outstanding refunds are promptly collected and deposited to ST Treasury.

- Develop and implement IT asset-recovering procedures. Specifically:

  o Build a logic rule in 'Exit Tickets' in ServiceNow to require completing certain fields such as location of the asset (the supervisor or manager location who may keep the asset after the termination of employee), IT asset number, name of assignment, etc.
  o Monitor the IT loaned asset status on a regular basis (e.g., connectivity of IT assets to the agency network, status of name assignment, etc.)

Management Response:

Management agrees with the audit report findings and observations.

Finding 1: Agency has inadequate oversight over its IT asset management process.

Observation 1: Agency has incomplete configuration attributes for IT asset inventory listing.

Management Response / Action Plan:

Thank you for giving the IT Department the opportunity to participate and respond to the Internal Audit on IT asset management. We agree with the finding and recommendations from this audit and have the following activities underway to improve our IT asset management practices:

1. Software asset management process development is in progress.
2. CMDB discovery is in progress and will cover the entire Agency, FCN, Transit Systems, and Link/Sounder domains (IT owned assets only). Manual CMDB updates for non-discoverable assets are underway.
3. IT asset recovery/disposal is a known issue and we are updating the user onboard/exit process as well as the desktop refresh process. This will provide the necessary steps in recovering assets, both hardware and software, from exiting staff.
4. Configuration attribute updates are in-progress and is an ongoing effort. This is also being addressed as part of the SAA Policy update but is reliant upon the discovery process.
5. The IT Service Management Office (SMO) will perform random audits to verify CI/asset owners are following the defined Service Asset and Configuration Management procedures and will require CI/asset owners to perform periodic audits of their own assets. These processes should provide the necessary oversight over asset management to ensure an accurate inventory.
6. The SMO and Service Desk will work together to create a reconciliation process to ensure all assets are complete and accurate in the asset inventory.

We believe implementing these actions matures the Sound Transit IT asset management practices in a meaningful way.

Timeline for corrective action:

We are committed to our remediation efforts laid out above, and have set the following timelines for their implementation:

Action Item	Due Date
Software asset management processes	Q2 2021
CMDB discovery for whole agency	Q1 2021
CMDB manual updates	Q4 2021
IT asset recovery procedures	Q2 2021
Configuration item attribute updates	Q4 2021
Oversight audits	Q2 2021
Reconciliations	Q4 2021