Governor's Office of Planning & Budget and
Office of the Legislative Fiscal Analyst

Low-Cost IT Procurement Efficiency Evaluation

A Report for the
Department of Government Operations, Division of Technology Services

October 2022

TABLE OF CONTENTS

SUMMARY

In accordance with UCA 63J-1-904, the Governor's Office of Planning and Budget (GOPB) and the Office of the Legislative Fiscal Analyst (LFA) conduct efficiency improvement projects with state agencies. For this efficiency evaluation, we collaborated with the Division of Technology Services (DTS) within the Department of Government Operations (DGO) to review the process through which DTS currently procures[1] information technology (IT) products for the state. We focused on low-cost (less than $5,000) IT products, including computers, other hardware, and software.

We found that DTS has built a foundation for procurement, including reviewing products for security and compatibility issues, negotiating vendor contracts, developing vendor relationships, and establishing a support infrastructure. However, we also identified circumstances when DTS does not add value to the procurement process and instead increases complexity unnecessarily, creating potential for confusion and errors and extending the time between when products are ordered and when they are available for use.

Based on our analysis, we determined that when DTS is procuring low-cost IT products, their mission should be **to serve Utah residents by keeping the state workforce working**. As such, their primary customer should be the "end user"—the state worker who needs an IT product to do their job.[2] DTS has several important objectives to consider when fulfilling their mission:

- Speed—Promote end users receiving products quickly
- Security—Protect the state's information and network from cyber threats
- Compatibility—Build and maintain effective and reliable IT infrastructure
- Support—Provide other technological expertise

All of these objectives, if not met, could impact the ability of an end user to do their job. We determined that the primary operational problems in the current DTS IT procurement process are negatively affecting the objective of speed. It can take a long time—often exceeding two months for a computer—for an end user to receive an IT product, leading to lost workforce productivity and diminished service to residents of the state.

This evaluation includes five recommendations. Each recommendation is associated with a step in the current DTS IT procurement process, with the aim of all recommendations working together to improve the overall process.

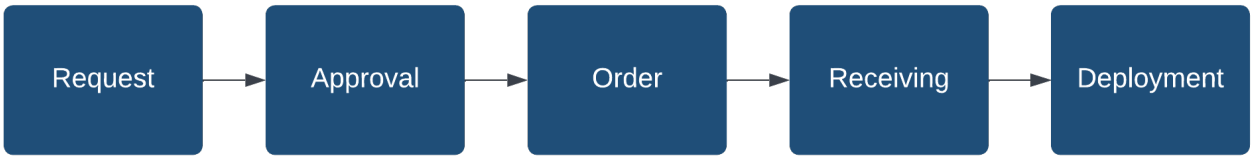
1. Identify which low-cost IT products are "low-risk" and allow agencies to purchase those products directly.
2. Streamline and simplify various exception and approval forms and processes.
3. Maintain a small central inventory of IT products at DTS.
4. Designate one owner of the full procurement process, from request to deployment.
5. Future recommendation—Receive all IT products at agencies and image all computers through desktop support.

1 DTS has a team called "DTS Procurement" but throughout this report, any reference we make to DTS procurement refers to the full process of request to deployment, unless otherwise noted.

2 The DTS Procurement team considers their primary customer to be the person who makes the request for an IT procurement. Instead, we suggest the end user, the person who will use the purchased IT product, should be the primary customer.

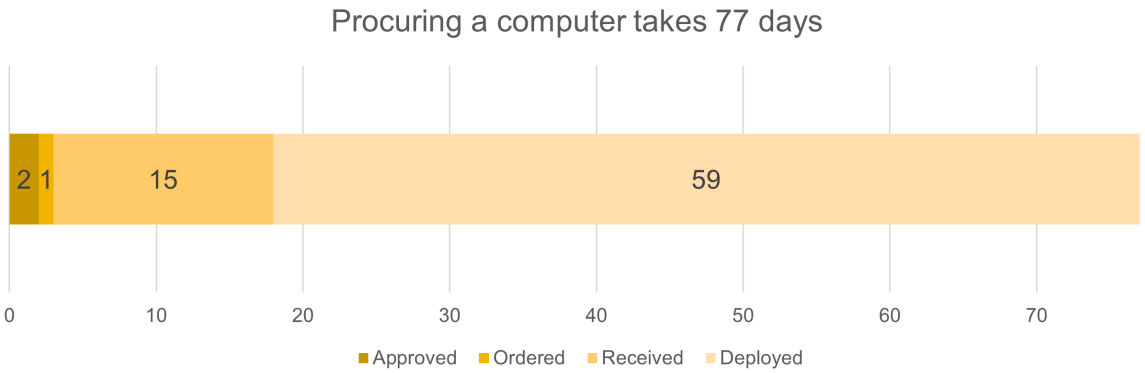
ANALYSIS

At the most basic level, DTS procures IT products through the following five steps:[3]



- Request—The agency submits a purchase request to DTS.
- Approval—DTS solicits agency and IT director approvals of the requested purchase.
- Order—DTS submits a purchase order for the request to the vendor.
- Receiving—The ordered item arrives at the DTS central receiving facility. DTS then pays the vendor.
- Deployment—DTS prepares the received item for use and sends it to desktop support to set up for the end user. DTS then bills agencies for IT products.

Using raw data provided to us by DTS, we determined the average length of time each step of the process takes for computers, as illustrated below.[4]



The graph above shows how long it took DTS to deploy computers to end users in 2022. 77 days was calculated by adding the average duration for each step in the procurement process. Our analysis excluded orders for stockrooms and any time spent on agency-requested holds. For the past few years, supply chain issues have been widespread. These delays are reflected in 'received' time, averaging 15 days. The time from DTS receiving a product to the end user using the product, shown in 'deployed', averages a much longer 59 days.[5] In some cases, end users are waiting for replacement computers and their work may not be interrupted by a lengthy process. However, we assume that some productivity is lost with an average wait time of this length. In addition, the time it takes DTS to deploy a computer to an end user is highly variable, making it difficult for agencies to know when to order an item to ensure the end user receives it by the time they need it. The fastest 25% of computers were deployed to the end user within 19 days of submitting the request, but the slowest 25% of computers took 107 days or more.

3 For a more complete (and complex) system map, see Appendix A.

4 For a detailed explanation of the data methodology and graphs showing the distribution for each process step, see Appendix D.

5 This is significantly greater than the average presented in the DOMO dashboards used by DTS at the time of our analysis. This is due to errors in the DOMO dashboards as well as the decision by DTS to exclude most computer deployments from these dashboards.

RECOMMENDATIONS

Our aim with the recommendations described below is to decrease the time it takes for state workers to receive needed IT products while balancing key considerations such as the state's cyber security. DTS is charged with implementing these recommendations or modifying them based on factors we did not account for in our analysis. We attempted to be as specific as possible, not to be prescriptive, but to convey the intent of the recommendation.

Recommendations are targeted to specific steps in the procurement process.

Process step: Request

<u>Recommendation 1:</u> Identify which low-cost IT products are "low-risk" and allow agencies to purchase those products directly.

We recognize the importance of ensuring that IT products used by the state are secure and compatible with existing infrastructure. However, the existing one-size-fits-all DTS procurement processes place too much emphasis on those criteria and delay products getting to end users, especially for low-risk IT products.

We recommend that agencies purchase low-risk IT products directly, either through existing state cooperative contracts or from other vendors who meet State Purchasing requirements. Agencies would receive direct shipments from vendors and make direct payments to those vendors.[6] Agencies could still choose to order through DTS, or consult with their agency IT director prior to placing an order directly. In all cases, agencies would continue to be subject to State Purchasing policies and procedures.

> *"Everything is on backorder, and the state will not allow us to seek out our products with other vendors that can fulfill them. This has caused a HUGE disruption in business when you have no docking station for your computer, no headsets to take conference calls etc."*
> *- Survey respondent*

In the first part of the chart in Appendix B, next to the decision point "Is the item low risk?," we propose what criteria could be used to determine if an IT product is inherently low-risk. We define low-risk as IT products (including hardware, software, and services) that do not connect to the state network, store or transmit protected data, pose compatibility issues with the state technical architecture, or require significant DTS desktop support.[7] For example, we believe that an IT product such as a monitor is inherently low-risk because it does not connect to the state network or store data, and requires minimal, if any, support from DTS desktop staff. We limited these suggested criteria to the key objectives for DTS, which is also where DTS adds critical value, such as security and compatibility; we intentionally omitted considerations that are managed elsewhere and do not need DTS assessment, such as whether an agency's desired item is too costly.[8] We recommend that the determination of whether an IT product is low-risk be based on criteria, rather than on a list of product types, as is currently the case with the DTS Product/Services and Exceptions matrix.

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6 Vendors under the current DTS PC Stores contracts indicated in interviews they could easily work with agencies directly.

7 We acknowledge that we are not experts in IT security and recognize that implementing our recommendations will require IT experts to determine what is and is not low-risk.

8 Cost and other administrative considerations should be managed by agency finance directors and IT directors, under usual state financial oversight procedures.

If an item does not meet the low-risk criteria, the next decision point is "Is it on the whitelist?" DTS currently maintains a whitelist of software products that it has evaluated and approved as sufficiently safe and compatible, which agencies can purchase directly. We recommend that DTS keep that list up-to-date and add hardware products that it has evaluated and approved as sufficiently safe and compatible, such as items in the standard catalog. Agencies could then purchase those whitelisted products directly as well. As we discuss further in Recommendation 2, DTS should make the whitelist an easily accessible and clear part of the process.

Currently, DTS manages agency budget approvals, purchasing, receiving, delivery, and billing based on their interpretation of statutory responsibility to approve IT acquisitions. DTS cites statute and rule for its procurement authority; however, we believe the cited statute does not grant DTS administrative authority for its current practice of individually approving all agency IT purchases, including purchases made using existing state contracts. Rather, DTS is the expert who must be consulted or give approval for IT contracts, but the authority to manage contracts and the procurement process lies with Purchasing.[9] Utah Code 63A-16-204 directs DTS to approve executive branch agency acquisitions of IT equipment, software, and technology services. The statute also directs DTS to establish (by administrative rule) standards for agencies to obtain DTS approval before purchasing hardware, software, and technology services. Administrative Code R895-5 establishes those standards but expands DTS approval authority beyond what is granted in the statute. The rule grants DTS "general supervision and control over the purchase of all hardware, software, and technology services." The statute grants DTS authority for approving IT purchases, but not "general supervision and control over [all purchases of hardware, software, and technology services]" as described in DTS administrative rule. Thus, we recommend DTS change the rule to align with its statutory authority for approving purchases of hardware, software, and technology services.

Process steps: Approval/Order

Recommendation 2: Streamline and simplify the various exception and approval forms and processes.

DTS has multiple processes and forms that an agency must navigate when placing an IT order. Some of the explanatory documentation is not intuitive to agencies, such as DTS Product/Services and Exceptions.[10] As another example, when an agency wants to procure any IT product or service outside of DTS processes, it must fill out the DTS Contract Exception form;[11] this is different from the DTS Computer Exception form, which is for ordering a non-standard product through DTS.

In our interviews, agency staff involved in purchasing told us that DTS procurement processes are time-consuming and confusing. This opinion was exemplified in a survey response that read in part: "The people are generally great to work with but the process is very frustrating." As a result,

> *"The people are generally great to work with but the process is very frustrating."*
> *- Survey respondent*

9 Our interpretation is supported by former Associate Attorney General Paul Tonks' review and recently reported legislative audit findings (see Chapter III, Recommendation 3.5) on related statute.

10 DTS Procurement prides itself on its customer service when agency staff have a problem. However, we agree with one of our interviewees who said, "escalation is not a process." Additionally, staff from different agencies told us they did not know the purpose or intent behind processes and policies, only that they were required by DTS.

11 We reviewed this form with the DTS Chief Information Security Officer, Phil Bates. He explained that the exception review process adds additional steps (including security review) and considerable time to the overall process of ordering products if an exception is not granted. He added that he regularly receives exception requests for products that should not require his review.

agencies sometimes fill out the wrong form or choose the wrong process, leading to procurement delays. We were also told agencies sometimes seek out workarounds to avoid using the DTS procurement process or delay upgrading their IT hardware as often as they should to avoid the process. The results of this level of complexity are increased workload on agency staff who submit purchase requests, increased workload for DTS staff who must follow up and fix each error, and increased wait times for end users.

Agencies will optimally have a single point of entry to the IT procurement system that guides the customer to the appropriate process based on criteria, as outlined in our proposal in Appendix B. Ideally, this process would be done through a web interface that directs agency users automatically but could also be done through a simple PDF, similar to the State Purchasing flowchart.

Additionally, these processes should be simplified by limiting or removing steps that do not promote the end goals of protecting the state's cybersecurity and maintaining an effective and reliable IT infrastructure. For example, purchase request reviews for low-cost products should be limited to ensuring the product is secure and compatible with the IT infrastructure; considerations such as whether a product is too expensive should be left to the budget officers at the customer agency. Billing could be simplified by having the vendor invoice the customer agency directly, rather than billing DTS, who in turn bills the agency.

Process step: Receiving

Recommendation 3: Maintain a small central inventory of IT products at DTS.

Many agencies stockpile IT products due to concerns about the supply chain or slow deployment by DTS. As reported by agencies and shown in the Hardware Asset Table data, a large volume of IT hardware is held in storage in agency stockrooms, totaling 8,097 computers in stock and available for use as of Aug. 19, 2022. Compared to 24,878 computers currently in use, the state has approximately one computer in storage for every three computers in use. Even when limiting our analysis to computers bought within the past five years we found there is one in stock and available for every four in use. In addition to computers, agencies stockpile peripheral hardware such as docks, monitors, and webcams, though we were unable to obtain stockroom inventory data for these items.

We recommend that DTS maintain a small inventory of computers and peripherals centrally and encourage agencies to reduce their own stockroom inventory levels over time, to reduce the number of IT products held statewide. According to DTS staff, DTS has several years of procurement information for agencies that it uses to negotiate with vendors. DTS should use this information to anticipate agency hardware needs. Reducing stockpiled inventory would increase the utilization rate of purchased computers and peripherals, which are continually losing warranty time and technological relevance. If agencies do not stockpile, they can reduce expenditures on hardware items. For example, reducing the ratio of computers in storage to computers in use from 1:3 to 1:10 would result in approximately 1,400 fewer computers purchased each year, providing an annual cost savings of $1.9 million.[12] It would also decrease other costs of excess inventory such as storage costs.

Further, a central inventory could help DTS reduce deployment time. More than a quarter of all computers ordered for named users and deployed during the first seven months of 2022 were placed on hold by the customer prior to deployment, with an average hold time of 41 days. The reason for putting a computer on hold varied, but a common reason was to wait for out-of-stock peripherals such as docks—an issue that could be eliminated in many cases through the creation of a central inventory.

12 Assuming a four year life-cycle and an average cost of $1,360 per computer.

This central inventory would also protect against delays due to out-of-stock computers or other vendor delays—the median computer was delivered by the vendor in five days, but 10% of computers took 29 days or more. We envision this central inventory as a back-up supply, for urgent needs or out-of-stock products only. DTS and agencies should order products from vendors when possible. DTS reported to us that they are already considering developing a central inventory for specific use cases and we support those efforts.

Process step: Request to Deployment

<u>Recommendation 4:</u> Designate one owner of the full procurement process, from request to deployment.

The five steps of the procurement process are organized into multiple management structures within DTS, resulting in potentially five different touchpoints in four different teams (see Appendix C). We observed that this structure, without oversight of the entire process except at a high management level, leads to hand-off errors, miscommunication, and delays in getting needed products to the end user.

One individual we spoke with lamented that the lack of a clear owner for the whole procurement process has created silos for process steps and reduced visibility into operations. This individual suggested that while it may be possible to identify an owner at the executive level, an executive-level employee may not have the necessary capacity to ensure synchronization across organizational structures.

We recommend DTS designate a single owner of the entire process. This owner needs to act proactively in the best interest of the customer. This includes actively monitoring orders throughout the entire process, reviewing order statuses, reaching out regularly to agencies with updates, and answering agency concerns that arise during the process. Designating a process owner will also increase accountability and transparency, improve data quality, and facilitate impact evaluations for improvement efforts.[13]

We further suggest that DTS leverage State Purchasing agents as the single point of contact for each agency to respond to procurement requests through State Purchasing or DTS. The agents can then interface with individuals at DTS as needed.[14]

Process step: Deployment

<u>Future Recommendation 5:</u> Receive all IT products at agencies and image all computers through desktop support.

DTS currently receives all IT products centrally, checks for shipping damage, images certain computers, and then delivers products to agencies by DTS courier or shipping company. We believe that shipping all products (including computers) directly to agencies, where they would be received and imaged by desktop support, would increase how quickly end users receive their products. However, because this is a substantial change we suggest DTS consider implementing this recommendation after fully implementing the other recommendations.

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13 DTS staff indicated that additional transparency into the purchase process, including status of requests, is something they would like to implement. However, transparency itself is not a process. We recommend that DTS focus first on actively addressing the overall process to improve the time it takes for equipment to arrive on an agency employee's desk, before adding features to the system.

14 State Purchasing Director Windy Aphayrath told us her team often receives customer service calls about delayed low-cost IT orders because customers do not know who to contact at DTS regarding such matters.

> *"There doesn't appear to be any value to shipping workstations to the TSOB. It's just a delay."*
> *- Survey respondent*

Shipping computers directly to the agency would shift the responsibility for some computer imaging from the DTS central provisioning team to desktop support at the end user's location. According to DTS, more than 80% of imaging is already done by desktop support and DTS expects imaging time to decrease with a new tool they are about to employ.[15]

While the length of time between when a request is submitted by the agency and the computer is received by DTS is not insignificant, the most time-consuming portion of the process is the period between when DTS receives the computer and deploys it to the end user. Using raw data from the Hardware Asset Table, we calculated that computers deployed in 2022 had an average time between Receiving and Deployment of 59 days, with half of all computers taking at least 49 days. By shipping computers directly to the end user's location and having desktop support perform the imaging, we expect that Receiving to Deployment could take significantly less time.

15 DTS indicated they will soon be using a new tool that will reduce the imaging time required per computer from two hours or longer down to 25 minutes.

ADDITIONAL OBSERVATIONS

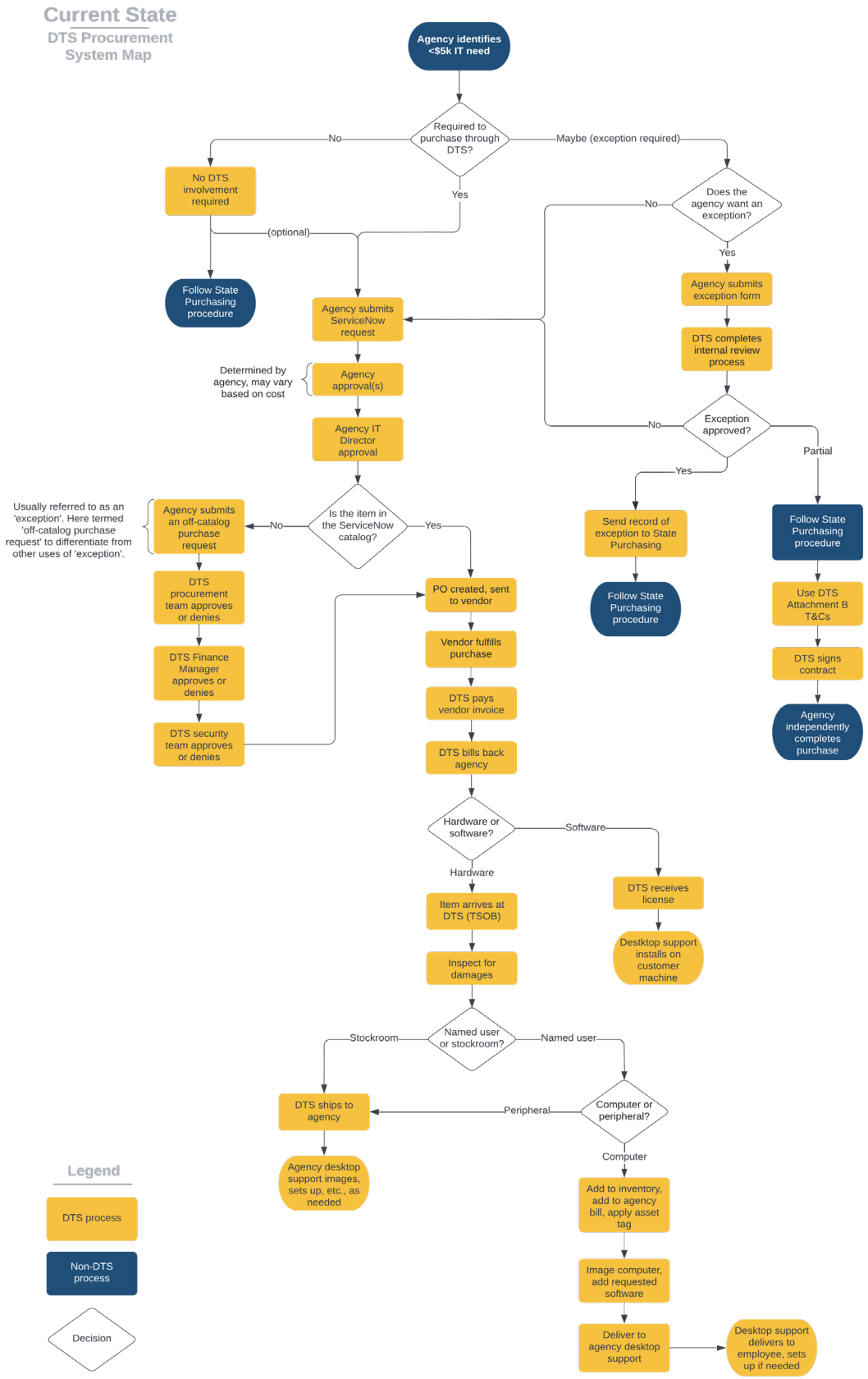
Throughout our process, we identified areas that were out of our scope or deserve more attention than we were able to provide during our evaluation. They are noted here for consideration.

- Hardware and software asset tracking does not seem to have a dedicated owner. There is confusion on the roles DTS and agencies have in asset management.[16] This confusion has led to neglected assets. Considering agencies pay software license renewals and monthly rates for networking and desktop support per computer, this is potentially costing agencies a significant amount each year.
- DTS approval processes need clarification. Agencies do not understand the level of DTS approvals they see in ServiceNow and ITServiceDesk emails. Some of this confusion will be avoided as agencies purchase more of their own IT products. We heard about several different approval processes throughout our evaluation.
    - Billing code (ELCID) approval pathway
        - Communication about ELCID approval pathways should be improved. DTS showed us a master Google sheet of agency ELCID approval pathways, but multiple agencies reported never seeing this document or even knowing what an ELCID approval pathway is.
    - Procurement approvals
        - The procurement team appears to be duplicating approvals. For example, a catalog purchase should not need DTS approval, even if it happens quickly, when a product is in the catalog because DTS has already vetted it.
    - Security approvals
        - The workflow of security approvals is vague. It is not clear what triggers a security review and when.
- Data collection and integrity prior to Jan. 2022 was poor, often making it difficult or impossible to assess the current state of DTS operations. Since Jan. 2022, it has improved; improvement efforts should continue and be monitored to ensure the improvement persists.
- We question the value of information gathered through the DTS procurement customer satisfaction survey. We observed that more than 50% of all responses came from just nine customers, including three DTS employees who are currently either on or adjacent to the procurement team. Further, many responses are for non-IT items that DTS purchases for themselves through ServiceNow such as printer paper, books, conference registrations, etc.[17]

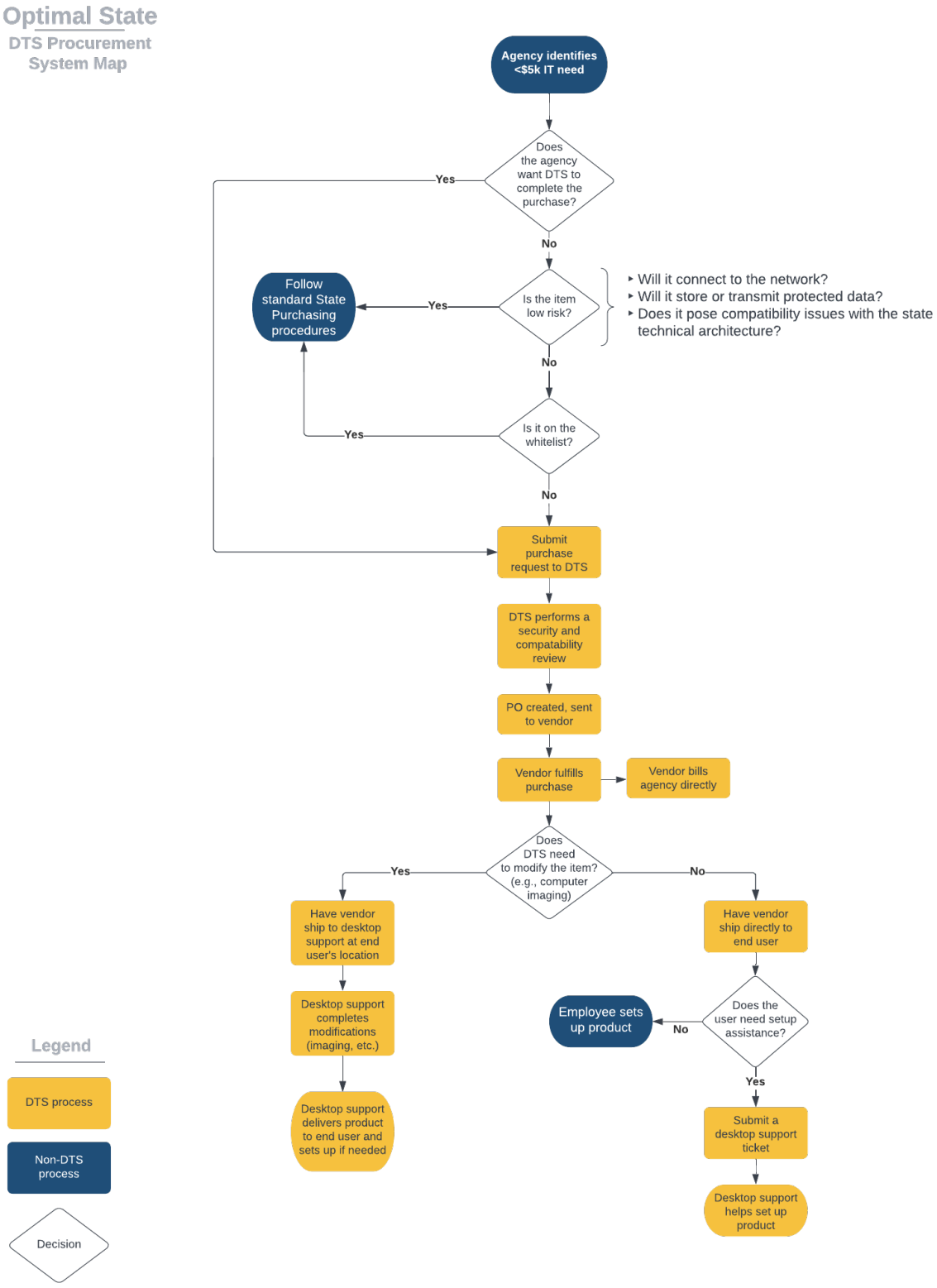
16 This issue has been addressed with recommendations in two previous OLAG audit reports: 2009-13 (Ch. II) and 2014-12 (Ch. III). However, individuals we interviewed raised concerns about asset tracking responsibilities as an ongoing issue.

17 OLAG noted similar concerns about DTS customer satisfaction survey in Chapter II of their recent report.

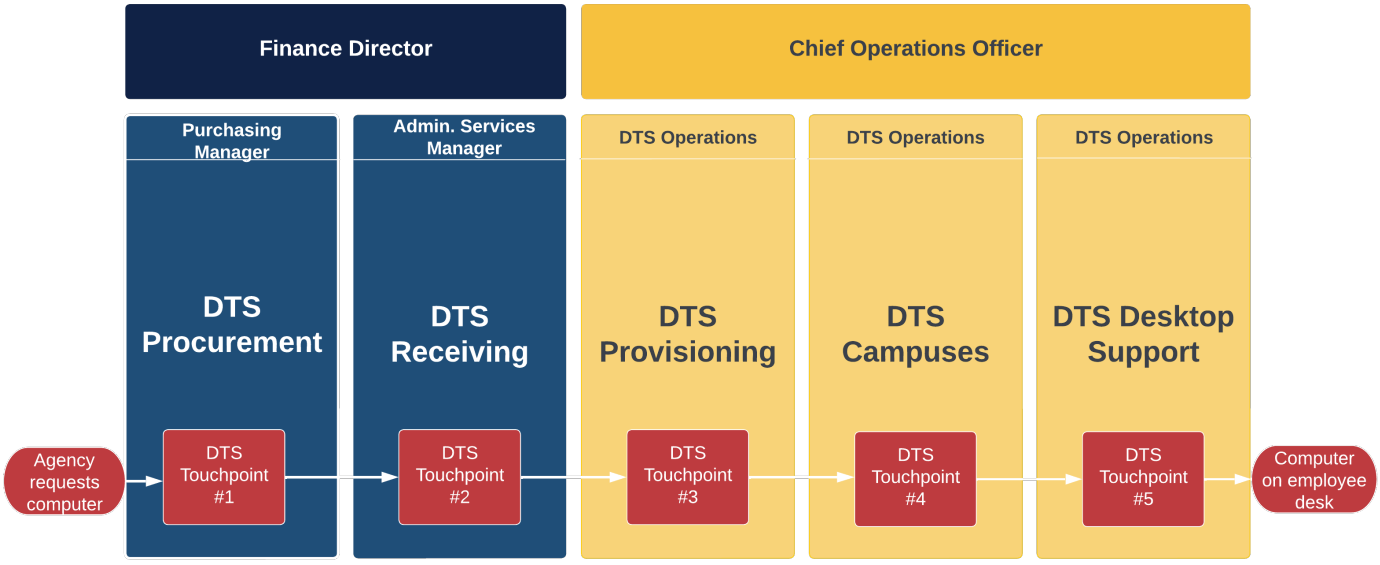
APPENDIX A - CURRENT SYSTEM MAP



APPENDIX B - OPTIMAL SYSTEM MAP



APPENDIX C - DTS TEAMS AND TOUCHPOINTS



APPENDIX D - METHODOLOGY

Purpose and Methodology

In 2021, the Utah State Legislature (in HB 326) established a joint team from the Governor's Office of Planning and Budget (GOPB) and the Office of the Legislative Fiscal Analyst (LFA) with the direction to undertake efficiency improvement projects with state agencies. Under this authority, we worked with the Division of Technology Services (DTS) within the Department of Government Operations (DGO) to evaluate the procurement of low-cost information technology (IT) products to identify opportunities for operational improvement.

To evaluate this process we met regularly with Department of Government Operations leadership, held standing meetings with the DTS teams involved in the procurement process, shadowed DTS staff, and toured the DTS central receiving and provisioning areas. We interviewed representatives from several state agencies to hear their experience as DTS customers, interviewed State Purchasing employees, met with three of the state's primary IT vendors to understand their current experience as well as to confirm their ability to accommodate certain recommendations made within this report, and interviewed legislative IT leadership to understand how their process for approving and procuring IT products compares and contrasts with the DTS process. We also analyzed various DTS datasets, including but not limited to:

- **Hardware Asset Table**—all computers purchased by the state as well as servers and some other hardware
- **Procurement All Orders**—all purchase requests received by DTS
- **DTS HW PC Exception Form**—all agency requests to purchase computers that are not included in the DTS ServiceNow catalog
- **DTS Procurement Customer Satisfaction Survey**—quantitative and qualitative responses

APPENDIX E - FIGURES

Figure 1. End user waiting time is highly variable. Weeks between request and deployment for 1,816 computers priced below $5,000 deployed in CY2022, excluding customer hold times. Those missing necessary timestamps are excluded.

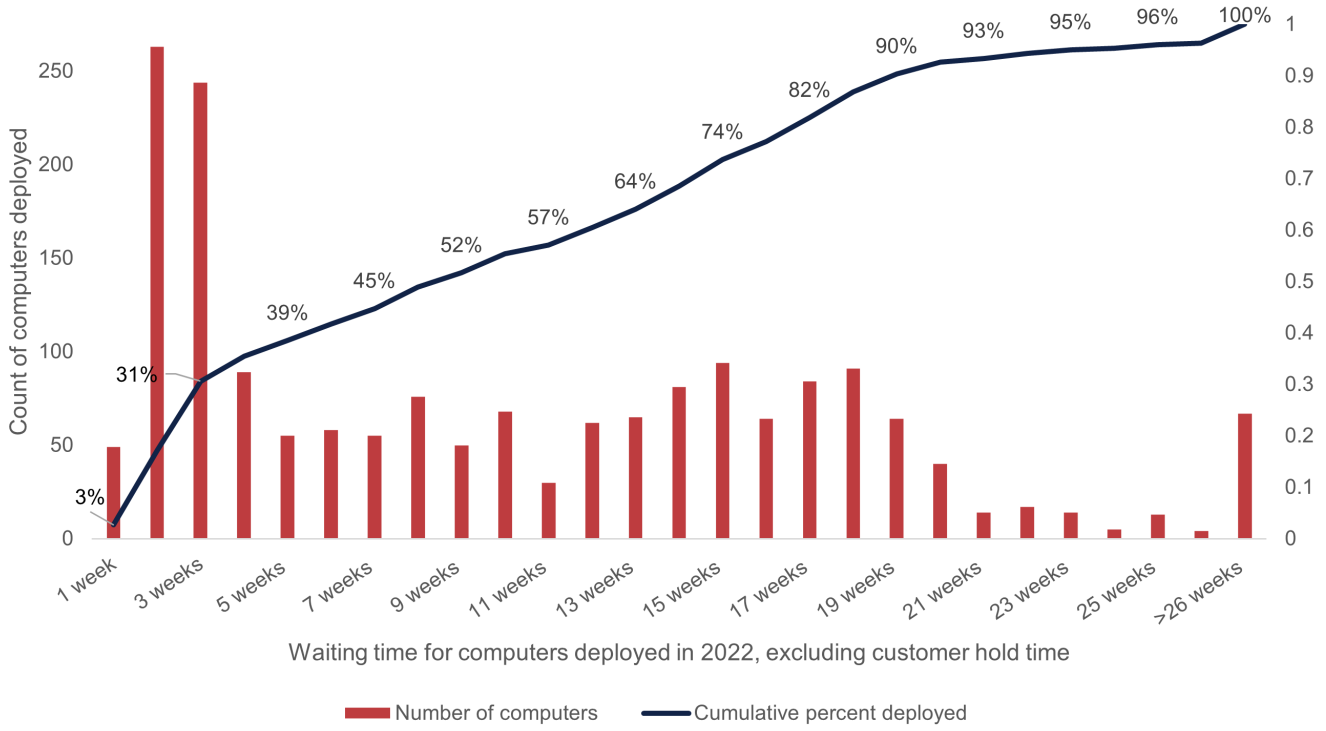
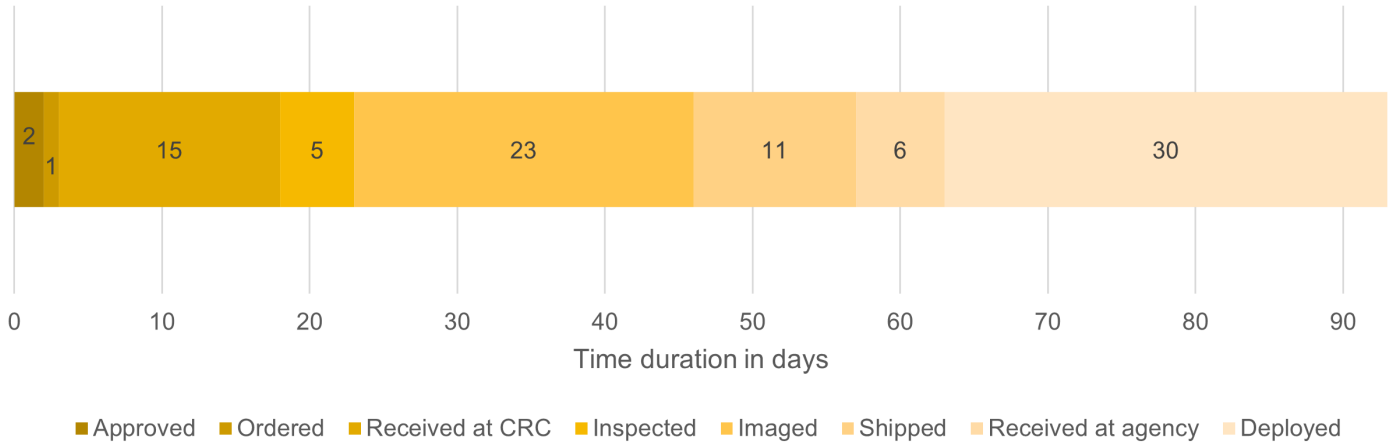


Figure 2. The many steps of the computer procurement process. These time durations exclude missing or impossible timestamps (i.e., timestamps that indicate later process steps were completed before earlier process steps), and do not account for customer hold times. As a result, the averages do not sum to those found in the similar prior chart.



APPENDIX F - RESPONSE

State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
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Department of Government Operations
Executive Director's Office

JENNEY REES
Executive Director

October 7, 2022

Jeff Mottishaw
Director of Operational Efficiencies
Governor's Office of Planning and Budget
350 N. State Street, #150
Salt Lake City, UT 84114

Director Mottishaw,

Thank you for the opportunity to respond to the recommendations provided by the Efficiency and Process Improvement Committee. We appreciate the professionalism of you and your staff during this review and for the guidance and recommendations you have provided for improvement. We believe our combined efforts will result in improvements that will benefit the agencies we serve.

We concur with all recommendations in this report and have attached a summary of steps we will take. The Division of Technology Services/Department of Government Operations is committed to efficiency, transparency, and quality customer service. We value the insight this audit has provided and look forward to implementing solutions for improvement.

Sincerely,

Jenney Rees

Jenney Rees
Executive Director

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Recommendation 1
Identify which low-cost IT products are "low risk" and allow agencies to purchase those products directly.

Division Response: The Division concurs.

DTS will work on a process to allow agencies to purchase low-risk technology products directly from existing state contracts. An internal working group will be established with agency representation to develop a whitelist of technology products that are compatible with existing standards that can be purchased directly by the agency. In addition, DTS will update rule R895-5 to align with statutory authority.

Recommendation 2
Streamline and simplify the various exception and approval forms and processes.

Division Response: The Division concurs.

DTS will work towards updating and simplifying the exception and approval process with the goal of having the fewest touches and steps possible. DTS will have an internal working group develop the new processes and will get agency feedback before a solution is implemented.

Recommendation 3
Maintain a small central inventory of IT products at DTS.

Division Response: The Division concurs.

DTS has worked with vendors to maintain a large inventory of products locally in Murray, Utah. While this inventory was completely depleted during the pandemic and associated supply constraints, today DTS has hundreds of computers, monitors, and docking stations in stock. In addition, DTS will keep an additional inventory of 50-100 computers in stock at the Taylorsville State Office Building (TSOB) for immediate deployment for certain situations. Finally, DTS will work internally and with agencies to get an accurate count of inventory devices in agency stock rooms and work to optimize those inventory levels.

Recommendation 4
Designate one owner of the full procurement process, from request to deployment.

Division Response: The Division concurs with slight modifications.

DTS agrees that there needs to be a single point of contact (SPOC) for agencies and a breakdown of the current silos in the procurement to deployment process. Although DTS does not agree with having a single owner for the full procurement process, DTS does agree that the focus should be on the customer. DTS will make sure there is one seamless

process that is simple, easy to understand, easy to track (on-line order tracking for the end-user) and that delivers value to the end user. There is a task force commissioned by the CIO that is meeting twice a week to develop a plan to accomplish this goal.

Recommendation 5
Receive all IT products at agencies and image all computers through desktop support.

Division Response: The Division concurs with slight modifications.

DTS agrees that getting a computer to the customer needs to be much faster with fewer touch points. DTS has the goal of delivering a computer directly from the vendor to the end-user and utilizing automated imaging provisioning tools at the end-user location. This eliminates the need for desktop support to image the computer while still accomplishing the intent of the recommendation of quicker deployment times. As with recommendation #4, there already is a task force that is meeting twice a week refining metrics, testing tools to assist in provisioning/imaging, meeting with vendors for more efficient delivery of hardware, and reviewing other efforts to accomplish this goal.

AUTHORS

This report was written as part of a joint collaboration between the Utah Governor's Office of Planning & Budget and the Office of the Legislative Fiscal Analyst.

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