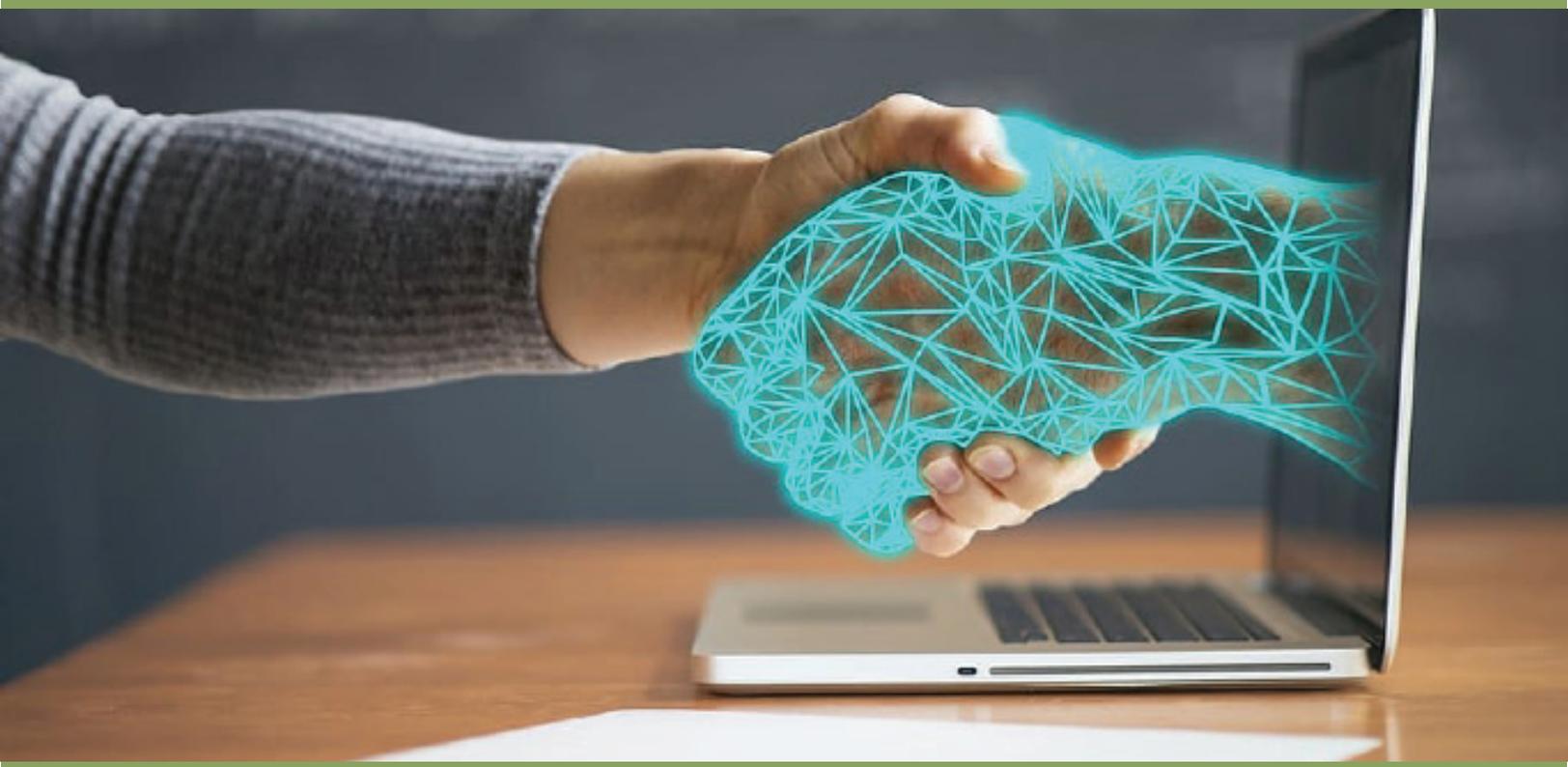


Audit Report

City Technology Purchases

October 2021



The City has an established process to purchase technology. However, that process does not ensure department and Citywide needs are met. The process is not coordinated, timely, or clear and may not be applied consistently. The process does not ensure City resources are secure and protected. Additionally, the City does not have a good understanding of its needs which may result in purchases not aligned with Citywide goals. To address these issues, the City has opportunities to better understand what resources it has, clarify roles and responsibilities, and coordinate technology purchases.

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Objective

Is the City’s process for obtaining technology goods and services efficient and do those goods and services meet City needs?

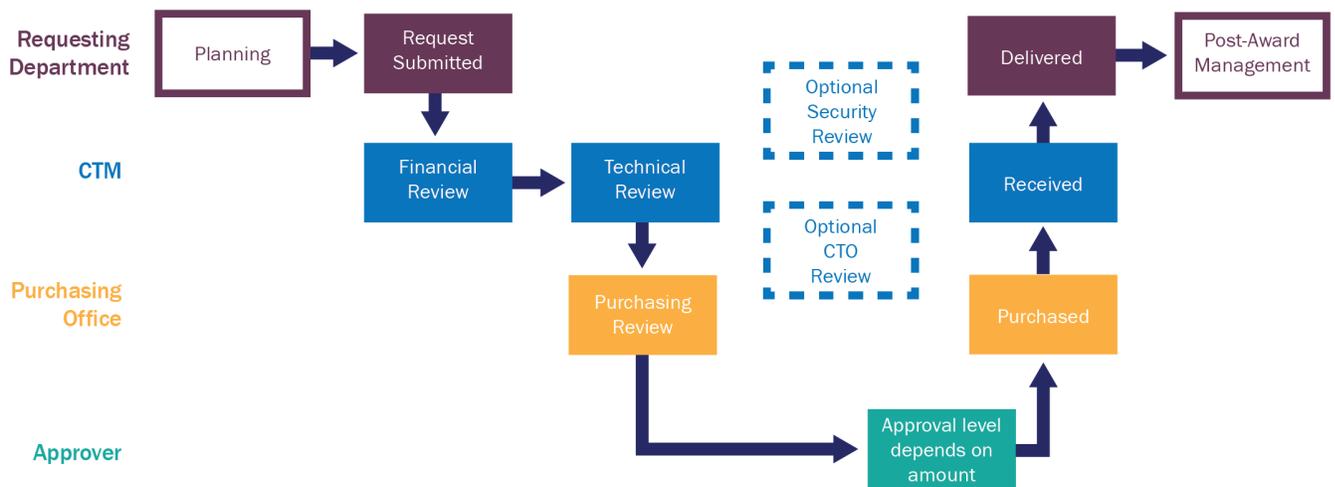
Background

The City’s 2019 IT Strategic Plan states its “current state of technology and its available resources do not always allow for the seamless delivery of services that our residents, businesses, and staff expect in Austin.” The City’s departments rely on technology to help meet the demand for their varied services. Most departments rely on the City’s Communications and Technology Management department (CTM) for assistance with their technology needs, including planning for purchases. However, some of the larger departments, including Austin Energy, Austin Water, and Aviation, have their own dedicated IT staff to address their needs.

Higher cost purchases require a competitive bidding process and Council approval which generally takes longer to complete than lower cost purchases.

The City’s process to purchase technology generally involves multiple parties including the City Council, CTM, the Corporate Purchasing Office, and other City departments. The City uses a tool called ServiceNow to track and manage technology purchase requests. An overview of the City’s technology purchasing process steps is shown in Exhibit 1.

Exhibit 1: The City’s technology purchasing process involves several steps and departments



Source: Analysis of the City’s activities conducted by OCA, June 2021

What We Found

Summary

The City has an established process to purchase technology. However, that process does not ensure department and Citywide needs are met. The process is not coordinated, timely, or clear and may not be applied consistently. The process does not ensure City resources are secure and protected. Additionally, the City does not have a good understanding of its needs which may result in purchases not aligned with Citywide goals. To address these issues, the City has opportunities to better understand what resources it has, clarify roles and responsibilities, and coordinate technology purchases.

Finding 1

The City's process to purchase technology is not working effectively to ensure City needs are met.

Best practice guidance notes that a process to purchase technology should be centrally coordinated across the organization and that a complete inventory of technology assets is a foundational tool for a good purchasing process. The City does not do either of these well.

There are several issues with the City's process to purchase technology. The City's oversight of technology is not effective. Planning for purchases is largely left to individual departments and not done consistently or coordinated Citywide. Also, the City's tool to track purchases is not working as intended. Finally, staff can purchase technology outside the established process.

For example, imagine you are living in a house with four other roommates who do not communicate much. Each of you goes to the grocery store and buys food, but none of you has a list or knows what is in the pantry before you go. When everyone gets home, how much food did you buy that was already in the house? How many of you bought the same thing? This is like how the City buys technology except the City's process is on a much larger scale.

The City's oversight of technology is not effective

The City lists three¹ groups that oversee its technology but only one, the IT Steering Committee, is currently functioning. The IT Steering Committee, made up of high-level City officials, sets the overall strategic direction, policy, and investment priorities for technology. Members of this group noted being unaware of key roles and disconnected from specific department actions related to the City's process to purchase technology. Members acknowledged three areas where they need better information to make oversight efforts more effective.

To effectively manage a process, managers need to know what resources they have and how those resources are deployed and performing.

¹ The City's two other listed oversight groups are the Chief Information Officers Council (CIOC) and the Department Directors' Advisory Council (DDAC). The CIOC had acted as a forum for IT leaders from several departments to collaborate but staff said this group has been paused. Also, the DDAC has not met since 2018. This group had been set up to evaluate and prioritize department technology needs. Staff said the DDAC no longer exists because of a change in the budget process.

According to best practice, organizations should have a complete inventory of its technology assets.

Decision-makers need accurate cost information to determine how to fund technology needs and address other critical City priorities.

City IT groups include CTM and most of the larger departments, including Austin Energy, Austin Water, and Aviation, who have their own dedicated IT staff.

Technology purchases should be based on clearly understood needs and align with the overall strategy and direction of the organization.

The City does not know what technology it owns because there is no inventory. Having an inventory of technology assets is key to avoid duplicate, wasteful purchases. It is also key to ensure the City buys technology that aligns with Citywide goals. There are security and fraud risks if the City cannot account for what it has and where it is. The absence of a complete inventory limited our ability to test for these situations. Our office issued recommendations for the City to establish an inventory in two prior audits. We followed up on those efforts and learned the expected completion date has been delayed. Management said they expect to have an inventory completed sometime in 2022.

The City does not know how much it spends on technology each year. Communications and Technology Management (CTM) department staff estimated this cost a few years ago, but noted it was not complete because there are several groups in the City that purchase technology. Additionally, costs would not be captured for technology that is purchased without being identified as technology. It is possible the City may find savings if all technology spending is known and coordinated. We tried to determine the City's cost for technology, but Budget Office staff said they are not aware of an accurate Citywide total for these costs.

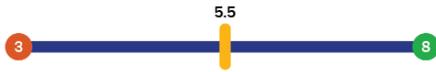
Roles and responsibilities are unclear. Members of the IT Steering Committee did not know who is responsible for ensuring technology purchases align with Citywide goals. Members noted the process needs to be clearer with better planning and coordination across the City. One member noted the Committee generally defers to decision-makers within individual IT groups. There does not seem to be a functioning group to facilitate collaboration or resolve differences of opinion among the City's different IT groups.

Planning for technology purchases is not done consistently or coordinated Citywide

The City's process to purchase technology includes four phases— planning, solicitation, negotiation and award, and contract management. In the City, planning for technology purchases is typically done by departments using their own process. The City has about 50 departments with different needs and requirements, and the City does not have an inventory of technology to help guide their planning.

According to staff, a centralized technology purchasing process would be burdensome and further slow the flow of technology. However, the sheer diversity of department needs and processes demands a highly coordinated and functioning process be in place.

The average staff ratings for both coordination and effectiveness of the process were 5.5 out of 10 (10 being best). Ratings ranged from 3 to 8.



The City recently defined technology to include computer hardware, software, and IT services.

An effective needs assessment should be proactive and consider both department and City needs.

We surveyed staff responsible for purchasing technology in 13 departments. About 85% of staff agreed with the following statements and noted issues with the City's process to purchase technology:

- The City's process is not clear or easy to understand. The process changes frequently, and those changes are not communicated to users.
- The City does not understand its short- or long-term technology needs. There is a lack of coordination among departments and a lack of Citywide strategic planning. Several staff noted City purchases are generally reactive and the City's technology does not keep pace with changes in the industry.
- The City does not have or communicate a definition of technology. Staff noted what qualifies as technology may depend on the day and who you ask, increasing the risk that a technology purchase will be made outside the established process.

The planning phase of the purchasing process is not centrally tracked. Instead, these decisions are tracked at the department level and are generally not shared or accessible to all decision-makers during other phases of the process. When CTM staff conduct reviews, they do not have easy access to specific planning information such as a needs assessment so the planning information is not used consistently to support review decisions. When we tried to review specific City technology purchases, we discovered department planning information may not always be available. It may not be kept in a central location or it may not be available at all if the person who did the planning left the City.

Most technology purchases tend to address immediate issues and do not consider long-term or Citywide needs. Departments have different approaches to planning for technology purchases. Some departments have detailed planning steps and some do not. One department uses a pilot approach where they buy a small amount to see if it works. Without adequate planning, departments may buy technology that does not meet their needs or is not aligned with Citywide needs.

In one instance, a department spent \$36,000 on tablets for staff to use in the field. After receiving the tablets, the department discovered they would not work with the department's software, and the department shelved them.

In another instance, a department needed to find a way to track its inventory and CTM suggested an existing City system. The department later discovered that system could not track all its inventory. Because CTM and the department only addressed an immediate need, the department is now starting the planning process over to find a system that meets all its needs.

The City does not have an effective way to plan for technology purchases across departments. We noted instances where this lack of planning resulted in operational challenges:

- The City has spent years planning for a new human capital management system. Due to these delays, one department purchased its own system to comply with industry requirements. Staff of this department stated they plan to transition to the City's system when it is available. Greater coordination and timeliness could have avoided the extra expense associated with buying a separate system.
- A department purchased a document-signing software because it had a specific feature that was a business requirement for the department. Later, CTM adopted a different document-signing software without that feature. Department staff noted the new software was initially free but its eventual cost was unclear. The planning process for this purchase poses coordination, security, and cost concerns.
- Many departments met over the course of a year to plan a Citywide application. Some departments were involved to ensure their specific needs were met. When CTM installed the application, several departments noted it did not meet the needs they had discussed. Those departments had to do extra work to find a solution.

Another hurdle to robust cooperation seems to be the cumulative effect of the type of situations noted above. Departments reported multiple instances where they perceived decision-makers, including CTM staff, changed course on planned purchases or did not fully consider department requirements. Over time, those departments separated their operations from CTM to be more in control of their own process and City management allowed this to happen. City management has also directed several changes at CTM in the last year, including top-level staff, that seem intended to improve collaboration among all City departments.

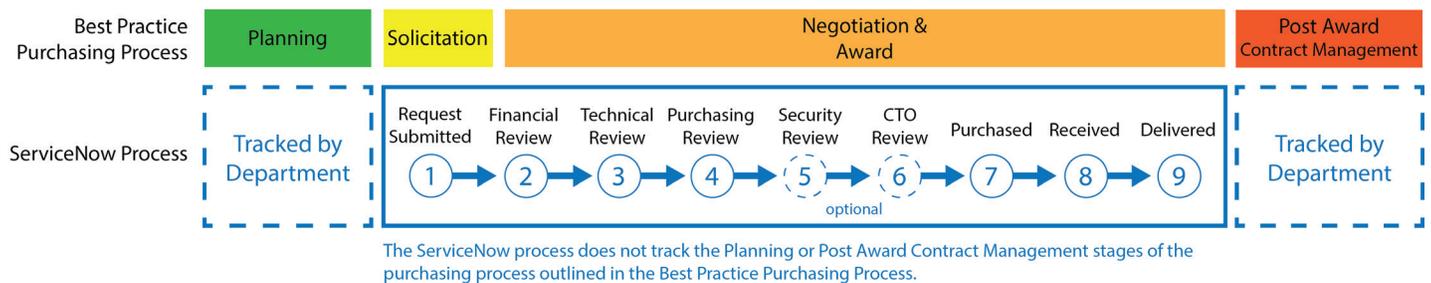
The City's tool to track technology purchases and its technology review processes are not working as intended

The City's Procurement Manual states that technology hardware, software, and services should be ordered through the City's tool to track these purchases, ServiceNow. However, we noted this tool:

- Does not capture and track all City technology purchases. Not all purchases are entered in ServiceNow. For example, technology purchased using a purchase card does not go through ServiceNow. Staff noted some purchase requests at Austin Energy have gone through a separate system. Also, any other purchases made outside the system do not go through ServiceNow. Not having all purchases captured in a single system makes it harder for the City to track those purchases and establish and maintain a complete inventory of technology assets.

- Does not fully communicate with other City systems. Staff noted ServiceNow and other City financial systems do not automatically share information. City staff manually checks key information from ServiceNow to the City's financial system during reviews of purchase requests. This requires some data to be entered manually, which results in inefficiency and the chance for data errors.
- Does not capture key information from all phases of the process. ServiceNow generally does not capture the planning or contract management phases. These are done largely by individual departments. We did not look at department contract management documentation in depth but have covered challenges in this function in prior audits. Of note for the purchasing process, we did not see a way for departments to share information about their experience with City vendors. As a result, departments may go through the process and contract with a vendor without knowing how well that vendor performed for other City departments.

Exhibit 2: CTM's tool does not track information from all four phases of the technology purchasing process



Source: OCA analysis of the City's technology procurement activities and procedures, April 2021

CTM and Purchasing are involved in the solicitation and negotiation and award phases of the technology purchasing process. ServiceNow tracks most of this information, but we found limitations in both documentation and purchase reviews. For example, we reviewed ServiceNow and identified purchases that seemed misclassified. A \$16 million item was identified as a purchase card transaction despite the City's purchase card limit being \$3,000. This turned out to be a large purchase agreement set up so departments could make small, monthly payments on their purchase cards. It appears CTM and Purchasing staff moved the large purchase request forward despite being unclear on whether it met applicable requirements. Also, we noted a case where a user was unable to select an identifier in ServiceNow to show the purchase as a sole source. We saw other examples where users did or could not enter ServiceNow information consistently.

Accurate and complete information can help ensure good oversight and management of a purchasing process.

The City's Procurement Manual calls for technology purchases to go through a review and approval process. This includes technical, financial, and optional security reviews. The reviews are meant to verify there is enough funding and ensure purchases will be safe and work with the City's existing technology. These reviews are not always done. Also, we found significant gaps in the way the reviews are performed and documented.

Technical reviews may not be thorough. City staff who perform these reviews do not document what they looked at or what they found. We did not find any formal criteria to guide these reviews, and without a technology inventory, staff rely on institutional knowledge. Also, there is no triage system to identify critical purchases, and these reviews do not explicitly check to see if the technology is aligned with Citywide goals. According to CTM staff, it is uncommon for technology purchases to be rejected through this review process. As such, some reviews may be just “checking the box.”

Security reviews are intended to provide assurance that the newly purchased technology will not expose the City to a security threat.

The average staff rating for satisfaction with the security review process was 6.1 out of 10 (10 being best). However, responses were extreme as ratings ranged from 0 to 10.



Security reviews are optional and not done consistently. All City staff and management we interviewed appeared to understand the severity of possible security threats to the City. However, based on a review of information in ServiceNow, only a small number of purchase records noted a security review was requested. CTM staff reported they do not have the staff or time to conduct all security reviews. Also, top management cited resource challenges in meeting critical security needs. Some of the bigger City departments with IT resources perform their own reviews. However, smaller departments reported they do not have the expertise to conduct thorough security reviews. Department staff also reported being pressured to move critical technology purchases forward without a security review. Others reported not knowing who to contact for a security review or having their purchase stall after making such a request.

The absence of a Citywide inventory continues to be a challenge for several of the process issues noted above. Department staff consistently cited CTM staffing and turnover as a key challenge to carry out their own responsibilities. We also noted widespread confusion about roles and responsibilities related to the City’s process to purchase technology.

Staff can purchase technology outside the established process

For all its challenges, the City does have a process in place to manage City technology purchases. Departments are supposed to follow this established process. However, staff said there is no way to ensure all technology purchases that should go through the process really do. Multiple staff reported knowing of situations where departments bypassed the technology purchasing process in one of several ways:

- Some departments purchase technology on purchase cards. In general, the City does not allow departments to purchase technology using purchase cards. One department reported an employee made an unauthorized purchase of a laptop and iPad for about \$1,750 using this method. According to department management, this was discovered because the equipment was not an approved model and could not be used on the City’s network.

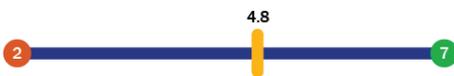
Technology purchased using purchase cards is not generally tracked in the City’s system.

- Free or trial software does not go through the process. Since the technology is free for a period, it does not go through the process until a purchase is made. During the trial period, City staff get used to the technology or come to rely on it. Staff reported the technology is usually converted to a purchase as a sole source.
- Managers may set up the purchasing process to get a specific outcome. We saw evidence of one such scenario. At the end of a purchase planning meeting, a manager asserted they were going with a certain vendor and the team would make the process look like it worked to identify that vendor.
- We identified other scenarios where staff could go outside the established purchasing process. One example is if staff used a non-technology code for a technology purchase. Staff said this could be a mistake or could be done on purpose. Another possibility is where the transaction does not involve money, such as a trade of technology for something else of value. We did not see specific instances but noted these are possibilities that management should take into account.

The City should ensure that technology is purchased in a timely manner.

Staff consistently identified the time it takes to get technology as a reason or even an incentive to go outside the established purchasing process. We sought to assess purchase timeliness but noted this is not easy due to the absence of centralized information. In the planning phase, departments do not consistently have documentation or track timelines such as a start date. For the phases tracked in ServiceNow, the various reviews are timestamped. However, these dates are not easily tracked. We were only able to see review sign-off dates by clicking through the individual purchases in ServiceNow. Also, City staff do not consistently enter milestone dates. Based on a review of completed technology purchases between June 2019 and January 2021, 13% of the 527 transactions did not record a received date.

The average staff rating for timeliness of the technology purchasing process was 4.8 out of 10 (10 being best). Ratings ranged from 2 to 7.



In our survey of departmental staff responsible for purchasing technology, 60% perceive the City's process as not timely. Staff seemed satisfied with purchases of typical technology items. However, they noted timelines stretch when purchasing something out of the ordinary. Other staff noted timeliness depends on who you are working with at CTM and how well they know the system. For example, one department reported a standard purchase for about \$20,000 took a year and a half to complete. Staff felt there were too many meetings and people involved for such a purchase.

If the City is not able to determine how long it takes to complete individual phases or steps of the process, it may not be able to identify and address specific issues that are causing those delays. Also, it may provide an incentive for staff to evade the established process. A technology purchasing process that takes too long keeps departments from implementing solutions in a timely manner. A good technology solution should improve efficiencies for both departments and customers.

Recommendations and Management Response

1

To strengthen oversight of City technology, the City Manager should ensure appropriate technology oversight or governing groups are established and operating effectively. To do this, the City Manager should:

- a. Clarify and communicate the roles and responsibilities of each governing group established, including any existing groups.
- b. Implement a monitoring and accountability process to ensure the governing groups and City staff are effectively carrying out their responsibilities and meeting all expectations.

Management Response: Agree

Proposed Implementation Plan: The City Manager's Office and the Chief Information Officer are reviewing the current state of the existing Information Technology (IT) Governance structure, beginning with the membership, roles and responsibilities of the IT Steering Committee. They are also reviewing the IT Steering Committee Charter to update as appropriate to include provisions for monitoring and accountability.

The IT Steering Committee will review or delegate the review of the other governing groups mentioned in the Auditor's report. The IT Steering Committee or Chief Information Officer will report to CMO annually with strategic initiatives and updates.

Proposed Implementation Dates:

- November 26, 2021 – Complete review of the IT Steering Committee to include membership, roles and responsibilities.
- January 28, 2022 – Complete updates to the IT Steering Committee Charter.
- July 29, 2022 – Complete review of other governing groups and revisions to their respective charters.

2

To improve coordination and better align City technology purchases, the City's Chief Information Officer should establish and lead a stakeholder group to recommend options for the City Manager's consideration and action in Recommendation 3. This stakeholder group should:

- a. Evaluate the City's current approach to purchasing technology.
- b. Address improvement opportunities noted in this report, especially related to reviews.
- c. Assess and develop options for moving to a more coordinated and effective approach.

Management Response: Agree

Proposed Implementation Plan: The Chief Information Officer is developing a team of key stakeholders to include the Financial Services Department, the Information Security Office and other key department stakeholders to evaluate the current processes in place for making technology investment decisions.

This stakeholder team will focus on improving and standardizing common practices across the City. As part of this process, the team will document a workflow to include the required steps, approvals, and thresholds for additional reviews, such as technology and security.

The stakeholder team will develop options for the City Manager's consideration that will be the foundation for Recommendation 3.

Proposed Implementation Dates:

- December 31, 2021 – Establish the Technology Purchasing Stakeholder team.
- December 1, 2022 – Provide options for City Manager's consideration.

3

To ensure the process for purchasing City technology is effective, the City Manager should assign clear responsibility and authority for this function consistent with the results from Recommendation 2. The assigned party or parties should have a clear process for considering and resolving disagreements among City departments.

Management Response: Agree

Proposed Implementation Plan: City Manager is reviewing the roles and responsibilities of the Chief Information Officer for citywide technology leadership.

The City Manager is working with the Chief Information Officer on a governance model that best fits the needs for the City to ensure alignment for City technology investments. This governance model will enable compliance and create a transparent decision-making process resolving any potential disagreement.

Proposed Implementation Dates:

- November 30, 2021 – Establish roles and responsibilities of the CIO.
- 6 months after results from Recommendation 2 – Establish Governance model for effective technology investment.

4

To facilitate coordination for City technology purchases, the City's Chief Information Officer should ensure the City maintains complete, accurate, and available information for decision-makers, including information about planning, reviews, and performance.

Management Response: Agree

Proposed Implementation Plan: The Chief Information Officer is working with key stakeholders to identify the information that needs to be maintained for technology purchases and subsequently the IT systems in which the information will be stored.

The Chief Information Officer will develop a service catalog to inform technology purchasing decisions. The service catalog will include CTM-supported services and technology hardware and software that is approved and supported. Additionally, the CIO will ensure the proper resources are identified and assigned to build and maintain the service catalog.

Proposed Implementation Dates:

- July 1, 2022 – Complete CTM Service Catalog implementation.
- December 30, 2022 – Complete identification and incorporation of the required information and IT systems in the Service Catalog.

Scope

The audit scope included the City of Austin's technology purchasing process activities for fiscal years 2019 through 2021.

Methodology

To complete this audit, we performed the following steps:

- Researched leading practices related to technology purchasing.
- Interviewed key personnel involved in the City's technology purchasing process.
- Reviewed policies and procedures relevant to the City's technology purchasing process.
- Reviewed the City's IT oversight or governance structure.
- Surveyed a sample of City departments on their experiences and perceptions related to the City's technology purchasing process.
- Analyzed technology purchasing information in the City's request and tracking tool.
- Analyzed department data related to technology purchases.
- Evaluated internal controls related to the City's technology purchasing process.
- Evaluated the risk of fraud, waste, and abuse with regard to the City's activities related to technology purchasing. During the course of this audit, we noted instances of possible fraud and waste and referred that information to the City Auditor's Integrity Unit for review.

Audit Standards

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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The Office of the City Auditor was created by the Austin City Charter as an independent office reporting to City Council to help establish accountability and improve City services. We conduct performance audits to review aspects of a City service or program and provide recommendations for improvement.

Audit Team

Patrick Johnson, Audit Manager
Henry Katumwa, Auditor-in-Charge
Francis Reilly
Andrew Scoggin
Mike Sim

City Auditor

Corrie Stokes

Deputy City Auditor

Jason Hadavi

Office of the City Auditor

phone: (512) 974-2805

email: AustinAuditor@austintexas.gov

website: <http://www.austintexas.gov/auditor>



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