



Memorandum

TO: SMART CITIES AND SERVICE
IMPROVEMENTS COMMITTEE

FROM: Rob Lloyd

**SUBJECT: CITY PORTFOLIO-PRODUCTS-PROJECTS
MANAGEMENT REPORT**

DATE: January 25, 2021

Approved

Date

27 January 2021

RECOMMENDATION

Accept the report on the City's investments in improving product management and project execution in the City organization. Review approaches, policies, results, and reporting dashboard that resolves a City Auditor recommendation.

OUTCOME

Provide a report reviewing approaches, policy, results, and reporting dashboard that continue to build the City's ability to deliver on its technology investments, including resolution of City Auditor findings and recommendations.

BACKGROUND

Prior to 2016 and coming out of the City of San José's decade of deficits, the City's investments in information and communications technologies had suffered from prolonged neglect and underfunding that undermined the City's ability to deliver initiatives. As of mid-2016, the Information Technology Department (ITD) had averaged a 35% vacancy rate for multiple years; almost 30% of its overall positions, the City had reduced ITD staffing from 150+ positions to about 80, ITD employee engagement was in the bottom 8th percentile in the Gallup Q12 Survey, and departments reported difficulties with undelivered projects.

As staffing reductions occurred in ITD, the City's larger departments built technology teams to compensate and to deliver on their technology needs where ITD was no longer able. The Airport, Police, Environmental Services Department (ESD), Public Works, Department of Transportation (DOT), Fire, Library, and Planning, Building and Code Enforcement (PBCE) departments allocated significant resources for this purpose. By ratio, the City now maintains about 70

technology positions in ITD, plus 70 technology positions in departments. This total technology position count is roughly the same as before reductions were made in ITD, indicating the City's equilibrium of technology staffing is 140-150 employees.

Technology staff from departments are directly accountable to department directors and emphasize responsiveness to immediate needs in their areas. Over time, central coordination of technology investments, adoption of service management practices, application of professional product and project management rigor, and adherence to cybersecurity requirements has devolved. Among other results, the analysis completed in the development of the City's 2017-2020 Information Technology (IT) Strategic Plan identified that between 2013 and 2016, the City had delivered less than 5% success on technology investments made during the City Budget Process, as measured by meeting at least two of three measures of cost, schedule, and scope/quality. Similarly, Citywide technology hardware and software systems were at 70%+ End-of-Engineered-Life and End-of-Support.

The 2017-2020 IT Strategic Plan identified weaknesses in the organization's ability to expertly acquire and implement technology solutions as a key strategic initiative if the City was to meet the San José Smart City Vision adopted in March 2016¹. Reinforcing this determination, the City Auditor's Office issued three findings in its March 2016 audit report to the City Council, titled "Technology Deployments: Additional Resources Needed to Shorten Deployment Timelines"². Specifically, the City Auditor's Office identified the following necessary actions:

- 1) Defined Replacement Program and an On-Going Funding and Staffing Strategy
- 2) Dedicated Staffing and Project Management to Ensure Timeliness and Success of Technology Implementations
- 3) Updated Procedures to Facilitate Technology Procurement

Beginning with Fiscal Year (FY) 2017-2018, ITD created the City Portfolio-Products-Projects Office (C3PO) as a formal program to maintain the City's effectiveness with products and projects management. ITD and its C3PO have worked with City departments to increase the success of technology projects Citywide from under 5% to over ~80% each year since inception. Between 2017 and 2019, the C3PO grew from one date-limited position, to three Enterprise Supervising Technology Analysts with a Division manager, to ten total positions based on Mayor and City Council's expansion of the C3PO division by six additional Product Project Managers (PPMs) in the FY 2019-2020 City Budget. Based on the City's actions and the impacts of those changes, all three findings and nine recommendation were implemented by ITD and confirmed as complete by the City Auditor's Office as of December 2019, closing the 2016 Audit on city Technology Deployments.

With the C3PO's success of the products-projects approach in the City, some projects remained challenging for the City, primarily large, multi-year, and/or multi-departmental initiatives. ITD reported on difficulties with chartering and executive sponsorship, technical architecture, project

¹ San Jose Smart City Vision: https://sanjose.granicus.com/MetaViewer.php?view_id=&clip_id=9630&meta_id=625873

² 2016 City Audit on Technology Deployments: <https://www.sanjoseca.gov/Home/ShowDocument?id=33872>

management, and status reporting with those initiatives. In November 2019, the City Auditor's office released its report to further advance the City's success with technology initiatives: *2019 Audit: Technology Deployments: Processes Can be Improved to Ensure Long-Term Success of the City's Technology Vision*. Despite dramatic overall improvement, the audit sampled complex technology initiatives in the City—including the Development Services Transformation project with Planning, Building and Code Enforcement, My San José (now San José 311) constituent relationship management system; New City Website project with City Manager's Office; and Business Tax System and Business Tax Amnesty projects—to make three findings and 10 recommendations:

1. **Improved Planning Can Increase the Likelihood of Project Success:** The City can benefit from a more thorough planning phase in its technology deployments. Most projects that we reviewed appeared to be significantly over their projected timelines and, in some instances, exceeded their original projected budgets. In some cases, projects did not clearly define the project scope, did not adequately engage stakeholders at the beginning of the project, or changed project approaches during implementation.
2. **A Formalized Governance Structure and Appropriate Staffing Is Critical for Complex, Interdepartmental Projects:** Technology deployments are often complex and interdepartmental, affecting the daily activities of employees, residents, programs, and existing systems. Some of the projects reviewed appeared to lack the appropriate staffing to manage that complexity, leading to hampered decision making and project resets. While some deployments have changed staffing and governance structures to address challenges, it is important to consider staffing and governance at the beginning of deployments. Having the right governance structure and the appropriate number and type of staff with adequate decision-making authority is important, especially for larger and more challenging interdepartmental projects.
3. **Reporting on Project Status Can Be Improved:** Regular, accurate reporting is essential to help policymakers provide oversight and the Administration to steer projects toward their intended outcomes, adjust when needed, and avoid delays and increased costs. In recent years, the City has started to report on projects identified in the Smart Cities Roadmap. While this roadmap has provided a starting ground for regular monitoring of many major projects in the City, it can be expanded to provide a more quantitative display of project status.

The Administration agreed with all finding and recommendations identified in the City Auditor's Report in its response. The Administration presented an overview of the work required to implement the recommendations and associated timeframes for completion. ITD defined the second phase of Technology Deployments work as, "Building the City's technology management and deployment muscle from getting fit to enabling transformation." Additionally, a \$1 million budget was created to support IT project management execution (since reduced in the 2020 City Budget reductions process).

With the creation of the C3PO Division, as well as other changes in policy and process, the City's success with project increased to its benchmark of 80% per fiscal year. The goal is to build upon this completion rate and to extend proven products-project management practices and disciplines citywide.

	2013-2016	FY 17-18	FY 18-19	FY 19-20
Technology Project Success Rate	<5%	78%	86%	86%

ANALYSIS

The response to the 2019 Technology Deployments Audit has been underway since November 2019 and included a multi-pronged approach of new hiring, new policies, new processes and procedures, and training related to implementing and managing complex, multi-department IT projects. Efforts included:

Hiring

The C3PO team has been built up over the past year to 6 Product-Project Managers (PPMs) and a Division Manager³. Each of the PPMs carries an assigned portfolio, with the dual assignment of (1) working with stakeholder departments to roadmap the technology investments that create the most value for City service delivery and (2) managing execution of project initiatives that are approved and funded by the City. As of January 2021, ITD's Products-Projects Portfolios consist of:

- **San José 311 and Customer Relationship Management (CRM):** Provide an omni-channel platform for the City to deliver superior services efficiently
- **Emergency and Safety Management Solutions:** Support all emergency response and preparedness solutions and expand capability in IT
- **Digital Inclusion and Digital Equity:** Bridge the Digital Divide through Community-based Wi-Fi initiatives and other technology solutions
- **Business Process Automation:** Automate, streamline, and digitize paper processes to be easily accessible, friendly, searchable, and secure
- **Online Digital Strategy:** Align internal and external digital services, policies, technologies, and teams into a unified Digital Strategy
- **Housing Technology Initiatives:** Support key housing technology investments and strategies

³ As part of FY 2019-20 mid-year budget cuts in response to COVID-19, 1 vacant PPM position was eliminated, and the remaining 2 positions were subject to the hiring freeze. As of this date, an exception has been granted for the 2 remaining vacant PPM positions and recruitment is underway. These two vacancies will be expected to support Development Services/Data initiatives and Cybersecurity/Privacy initiatives.

Policy

The new Technology Management and Deployments Policy addresses recommendations one through six of the 2019 Technology Deployments Audit. Some of the highlights of the policy include:

- **Scope:** The policy applies to all City employees, interns, volunteers, and City officials.
- **Responsibility:** Defining roles and accountability for ensuring resources, policies, services, and coordination occurs across City departments to maximize the success of City technology investments.
- **Product Owners, Product Managers & Roadmaps:** Are now defined and required.
- **Project Chartering & Planning:** Are required for all major IT projects.
- **The Total Cost of Ownership:** This model (long range planning of costs – 3-5 years) is now how all IT projects will be viewed going forward.
- **Functional and Technical Leads:** All projects must have at least one functional and one technical lead working together and named in the Project Charter.
- **Product Owner:** Guidelines include having a Product Owner, which is a key role and different from the Project Manager.
- **Contract PPMs:** Must have oversight and are paid for delivery, not time.
- **Progress and Status Reporting:** Reported every other month by the C3PO Division Manager at the Smart Cities and Service Improvements Committee.
- **Archiving:** All relevant documents are saved, viewable and searchable online.

Training

The C3PO group has started an internal Academies program for technology professionals who work on or manage projects at the City. The Academies educate staff on practices for:

- The new Technology Management and Deployments Policy
- The concept of chartering and best practices for managing an IT project
- Reporting of major IT projects to C3PO for inclusion in the Smart Cities Roadmap Update

Additionally, since the C3PO team has extensive and varied experience with product and project management, we have set up the C3PO Academies as a platform to teach best practices and skills. Topics include:

- Stakeholder analysis
- Risk Assessment and mitigation
- Work breakdown structures and creation of a project plan
- Quality assurance and testing
- Graphic design and user experience testing
- Project prioritization
- Roadmaps and long-term planning
- Project status reporting
- Ideation and innovation

In addition to scheduled live courses, all templates, tools and archived course videos are stored on an internal SharePoint site known as the C3PO Center of Excellence.

Progress toward addressing audit findings & recommendations

Finding 1: Improved Planning Can Increase the Likelihood of Project Success

Recommendation #1: To address Citywide technology deployments and project management, the Administration should update the Procurement of Information Technology Policy (City Policy Manual Section 5.1.9) or develop a new Technology Deployment Policy to:

- a. Require project charters for technology projects (potentially reviewed and approved by ITD or City Manager's Office (CMO)) prior to the procurement process.
- b. Clearly define the essential and secondary features that address business need within this project charter.

Status: Nearly implemented.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and Office of Employee Relations/Human Resources (OER/HR). The policy specifically requires charters for technology projects prior that meet size, complexity, cost, and sensitivity thresholds with oversight by the City's Portfolio-Products-Projects Office. Charters are required prior to ITD approval, which is required for procurement to start. Draft charters will also be used to inform budget requests for large initiatives. Project success can be measured against the budget, timelines and features specified in the charter, enabling defined measurement of project completion.

Recommendation #2: In the Administration's policy update for technology deployments (see Recommendation #1), require departments to identify and engage all relevant levels of product users and stakeholders in the project chartering process.

Status: Nearly implemented.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and OER/HR. The policy specifically requires charters for technology projects that identify and engage all relevant levels of sponsor/executive ownership, product users, functional leads, technical leads, testers, and core stakeholders.

Recommendation #3: In the Administration's policy update for technology deployments (see Recommendation #1), require departments to identify the appropriate project approach (e.g., Agile or Waterfall) in the project chartering process. These approaches should be incorporated into both the procurement process and in vendor agreements.

Status: Nearly implemented.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and OER/HR. The policy specifically requires charters for technology projects to identify the project approach (e.g., Agile, Waterfall, other), as well as the procurement officer the project is coordinating with on method and prioritization. The charter template directly requires identification of the project approach.

Finding 2: A Formalized Governance Structure and Appropriate Staffing Is Critical for Complex, Interdepartmental Projects

Recommendation #4: To ensure appropriate staffing with the right decision-making authority is designated to a technology project, the Administration's policy update for technology deployments (see Recommendation #1) should require:

- a. Clear governance structures for complex and interdepartmental technology projects, which include well-defined roles, responsibilities, decision-making authority, and the role of the City Manager's Office.
- b. Allocation of appropriate staffing resources based on project timelines, complexity, and approach.

Status: Nearly implemented.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and OER/HR. The policy specifically requires charters, which include a definition of roles and responsibilities, assignments of individuals to the roles, and project executive sponsorship with steering group. Charters also require a detailed and agreed work breakdown and resourcing estimates based on the project approach, including staffing and approximate timing of their work in the project, depending on the complexity of the initiative.

Recommendation #5: The Administration's policy update for technology deployments (see Recommendation #1) should:

- a. Formalize the role of the Information Technology Department (ITD) in technology deployments in initial project planning.

- b. Identify an ITD liaison for the entirety of the project, as appropriate.
- c. Formalize the role of the Procurement Planning Board (PPB) in prioritizing technology procurements.

Status: Nearly implemented.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and OER/HR. The policy specifically formalizes the role of ITD in reviewing/approving charters and then overseeing the Project Monitoring and Controlling process group in formal project management. Project statuses will begin to be reported to the Smart Cities and Services Improvements Committee as of February 2021. Per the Policy, ITD is setting guidelines for when rigorous product-project management processes are required, which are triggered by project cost (over \$500 thousand), complexity (multi-year duration/multi-departmental interests), and sensitivity (life/safety/high-interest). Additionally, charters are used in the justification of initiatives to the PPB; Product-Project Managers and delegated staff approved to oversee City IT projects, are required to shepherd initiatives through PPB when required.

Recommendation #6: In order to ensure that complex technology projects are adequately managed:

- a. Departments should work with the City's Portfolio-Product-Projects Office (C3PO) to evaluate internal project management capacity within the project chartering process.
- b. If internal capacity is lacking and the project needs to use a consultant project manager, departments should identify staff at the beginning of the process to monitor and assess consultant performance and tie expenditures to overall project progress.
- c. Require consultant project managers to report project progress on a regular basis to an appropriate governing body (e.g., the executive steering committee).

Status: Active Initiative.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and OER/HR. The policy requires City departments to work with the City's Portfolio-Products-Projects Office (C3PO) to evaluate internal project management capacity within the project chartering process; that if a consultant project manager is used, that departments identify staff at the beginning of the process to monitor and assess consultant performance and tie expenditures to overall project progress; and, that consultant project managers report project progress on a regular basis to an appropriate governing body (e.g., executive steering committee).

ITD aims to mark this recommendation Complete in mid-2021. Work is underway to build processes and practices that demonstrate effective delegation of product and project management

duties and provide for accurate reporting. Regular Citywide IT project status reporting will be established and flow through to the Smart Cities and Service Improvement Committee.

Recommendation #7: To limit loss of knowledge when key project staff leave the City, the Administration should develop procedures to require project staff Citywide to document (potentially using a shared platform) key technology deployment decision points, which include:

- Approval of specifications
- Product customizations and their approvals
- Progress against project plans
- Changes to agreed-upon features
- Key communications with the vendor

Status: Nearly implemented.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and OER/HR. The policy references Project Management guideline and protocols that instruct project initiation, planning, executing, monitoring/controlling, and closing process groups, as well as knowledge areas spanning integration, scope, schedule, cost, quality, resources, communications, risk, procurements, and stakeholder management. These resources continue to grow, in tandem with academies the C3PO Division has initiated to teach more staff to run IT-related projects effectively. Once Citywide training, processes, and reporting are running consistently and well, ITD will propose this recommendation be marked Complete – currently targeting end of 2021.

Project documents created by City IT Products-Projects Managers in C3PO are archived on a SharePoint site per project, where they are maintained for shared access, search, and archiving.

Recommendation #8: To ensure key vendor staff have adequate knowledge, skills, and expertise as turnover occurs, the Administration should work with the City Attorney's Office to include a clause in future vendor agreements for technology projects to ensure the City has input on the selection and replacement of key vendor staff.

Status: Implemented.

IT Department Update: ITD coordinated with the City Attorney's Office and the Finance Department's Purchasing Division to update boiler-plate in all vendor agreements to ensure the City has input on the selection and replacement of key vendor staff since February 28, 2020. ITD has proposed as protocol that Finance-Purchasing, City Attorney's Office (CAO), and ITD meet at least annually to review and update the City's standard IT-related terms to keep them current with changes in technology services, goods, and industry offerings.

Finding 3: Reporting on Project Status Can Be Improved

Recommendation #9: For transparency on the status of technology projects above a certain threshold of complexity, dollar value, or public impact, the Administration should develop guidelines to:

- a. Require regular and detailed reporting to the appropriate Council Committee(s).
- b. Include budget and time metrics, as well as deviations from original estimates in reporting.
- c. Create a dashboard, or other online tool, to track and publicly display the progress of key technology projects, incorporating metrics that are critical to the success of the deployment.

Status: Nearing Implementation.

IT Department Update: The Technology Management and Deployment Policy (1.7.x) has been drafted, presented to departments, and is in final reviews with CMO and OER/HR. The policy formalizes the role of ITD in overseeing Project Monitoring and Controlling in formal project management Citywide.

Project statuses are currently reported in a basic (red, yellow, green) format to the Smart Cities and Services Improvements Committee on the bases of scope, schedule, budget, and value. In the fourth quarter of FY 2020-21, plans are underway to show project performance in accordance with criteria established by C3PO that are necessary for project success. ITD set guidelines for when rigorous product-project management processes are required, which are triggered by project cost (over \$500 thousand), complexity (multi-year duration/multi-departmental interests), and sensitivity (life/safety/high-interest).

Recommendation #10: The Information Technology Department should work with City departments to compile and continuously update a comprehensive inventory of technology assets/systems Citywide and establish criteria for monitoring key events in the technology's lifecycle (e.g., contract expiration, vendor end support dates).

Status: Active Initiative.

IT Department Update: Multiple inventory/asset tracking systems exist within the City based on reporting from City departments to IT. The Asset-Management-by-Submittals method has not held up under scrutiny. Accuracy continues to be problematic when ITD has reviewed licensing, coordinated computer purchases, and managed cybersecurity response.

ITD will incorporate Recommendation 1#0 into the Cybersecurity Work Plan and connect it with the IT Strategic Plan currently in development. The new City Technology Management and Deployments Policy clarifies roles and authorities in ensuring the City is aware of and manages

its technology assets in a manner that optimizes resources, manages projects expertly, ensures cybersecurity, and that keeps the City compliant with its licensing agreements.

CONCLUSION

The primary goal of the policy changes, process changes, and staffing is to ensure success in the City's technology investments and change initiatives. This includes product and project success for large, complex, interdepartmental, transformative or highly-visible IT projects within the City, and to ensure their success in both initial deployment and long-term. This administration's goal to make technology product and project management a defining strength for the City of San Jose is underway and will continue to improve.

The impact of a focus on product and project management has been clear, with more projects delivered on time and on budget than ever before. The lesson's learned from each new project deployed has been incorporated into a continuous improvement cycle with this institutional information remaining within the city, as opposed to vendors and contractors. With the regular presentations to the Smart Cities and Service Improvements Committee the active reporting on projects on the basis of spend, scope, quality, schedule and ultimately business value delivered moves us closer to closing all of the audit recommendations.

The journey so far has been an upward trajectory of improvements to project deployments, reporting, and a focus on delivering value so that projects are not only completed, but they actually deliver on the promise of technology, to improve the lives of the residents of the City of San Jose as well as the employees and partners. Focus areas next are around establishing reporting cadence and ensuring that all IT projects, including those not managed by C3PO or ITD, adhere to established standards and processes, ensuring success, visibility and retained knowledge. A roadmap for the continual maturity of the City Portfolio-Products-Projects Office has been established and builds from the three finding from the 2019 Technology Deployment Audit.

The Administration greatly appreciates the comprehensive audit of Technology Deployments prepared by the City Auditor and staff. The Information Technology Department and the people it serves will only benefit from the improvements set forth by these changes.

EVALUATION AND FOLLOW-UP

No additional follow up actions with the Smart Cities and Service Improvements Committee are expected at this time.

PUBLIC OUTREACH

This memorandum will be posted to the City's website for the Smart Cities and Service Improvements Committee Agenda for the February 4, 2021 Committee meeting.

COORDINATION

This memorandum has been coordinated with the City Manager's Office and City Auditor's Office. The City Auditor's Office is in the process of confirming the status of the recommendations and will report separately as part their normal semi-annual recommendation follow up process.

/s/
ROB LLOYD
Chief Information Officer
Information Technology Department

For questions, please contact, Michael Foster, IT Division Manager, at (408) 793-6922.