



# Memorandum

**TO:** SMART CITIES AND SERVICE  
IMPROVEMENTS COMMITTEE

**FROM:** Rob Lloyd

**SUBJECT:** SEE BELOW

**DATE:** February 21,2017

Approved

Date

23 FEBRUARY 2017

**SUBJECT: 2017-2019 INNOVATION & TECHNOLOGY STRATEGIC PLAN**

## RECOMMENDATION

Review and accept the City of San José 2017-2019 Innovation and Technology Strategic Plan. Refer the report to the March 21, 2017, City Council meeting for adoption to include priorities and initiatives identified for consideration as part of the City budget process.

## BACKGROUND

The City of San José adopted<sup>1</sup> its Smart City Vision in 2016. Working with the Mayor and City Council, the City Manager established the City's Office of Civic Innovation and Digital Strategy as part of the 2016-2017 Adopted Operating Budget to achieve that shared vision. Mayor and City Council requested action on priority initiatives and projects in its approvals<sup>2</sup>.

Included in the direction to make "San José the most innovative city in the United States by 2020," Mayor and City Council directed the City Manager to move the City's Information Technology function from "primarily a support function" to one that serves as a core business enabler for the whole organization. The Council further requested, "A city-wide digital strategy will build on those efforts and help to move many pilot efforts to scaled impact."<sup>2</sup> The proposed City of San José 2017-2019 Innovation and Technology Strategic Plan provides the near- and long-term direction to accomplish those outcomes.

Beginning in August 2016, with arrival of the City's new Information Technology Department (ITD) leadership, staff began the process of assessing the current state of the City's technology environment. The City's CIO met with every City department director, a majority of their executive staffs, and their IT managers to document current and emerging needs. ITD staff and

<sup>1</sup> Smart City Vision, 3.8: [http://sanjose.granicus.com/MetaViewer.php?view\\_id=&clip\\_id=9035&meta\\_id=565616](http://sanjose.granicus.com/MetaViewer.php?view_id=&clip_id=9035&meta_id=565616)

<sup>2</sup> Smart City Memo: [http://sanjose.granicus.com/MetaViewer.php?view\\_id=&clip\\_id=9035&meta\\_id=565617](http://sanjose.granicus.com/MetaViewer.php?view_id=&clip_id=9035&meta_id=565617)

the CIO completed an Infrastructure Systems Plan to catalog essential technology and communications assets; assembled audit findings requiring resolution; set hiring and engagement efforts to resolve immediate workforce issues; and began to address critical cybersecurity needs placing the City at risk. These items were reviewed with the Mayor and City Council, in summary form, at the January 27, 2017, Study Session on Civic Innovation and Digital Strategy<sup>3</sup>.

The direction to successfully rebuild the IT Department also encompassed an Information and Communications Technology (ICT) Master Plan, organizational redesign, included projects for customer relationship management and a master addressing systems, and sought technology procurement improvements. The plan proposed here addresses those items as part of a three-year journey and period of reinvestment in the City's use of technology to reach the highest levels of service, innovation, security, and efficiency. In sum, the Innovation and Technology Strategic Plan is the culmination of a large body of work guided by the aim of realizing the San José Smart City Vision.

## ANALYSIS

With significant budget shortfalls in past years, funding was not available to invest in technology. As a result, the City has accrued significant deficiencies that hold the organization back from its Smart City aspirations. These liabilities emerge at all levels of technology use by residents and employees, are recurring themes in internal and external audits, and routinely cause project issues across City departments. The Mayor and City Council identified these needs at a high level in their discussions related to the approval of the San José Smart City Vision.

The process of forming an Innovation and Technology Strategic Plan is educational and verified a range of needs and opportunities for the City. Input from departments, performance metrics, asset data, and audits all paint a clear picture of a City technology environment that is stretched beyond its limits. Meeting the needs of current operations—and the expected exponential growth in the volume of devices, data, and integrations used by the organization—requires significant one-time and long-term investments. Indeed, every City department gave input how the City's investments in technology and innovation are critical to their goals and service delivery.

Key themes from the IT Strategic Planning assessment include:

**Tech Debt**—The City's accumulation of technology deficits from non-compliant, unmaintained, end-of-life, and siloed assets is similar to debt—a useful tool, but something that must ultimately be paid. Tech Debt is characterized by: projects that routinely exceed budget and schedule; accumulating negative audit findings; a rising number of system failures and outages; a systems environment where obsolete technologies in use prevent the adopting of new technologies; and trends showing difficulties in hiring and retaining employees as individuals look for

---

<sup>3</sup> Civic Innovation Agenda: [http://sanjose.granicus.com/GeneratedAgendaViewer.php?view\\_id=51&clip\\_id=9493](http://sanjose.granicus.com/GeneratedAgendaViewer.php?view_id=51&clip_id=9493)

environments that will provide better skills growth. In sum, where Tech Debt is high, resources go to waste instead of toward new capacities.

**Lack of Capacity**—Consistent with other City departments, the Information Technology Department operates with a much smaller staff and budget versus organizations of similar city size. Lean organizations have positive attributes. However, the data show the City's technology environment is exceedingly overextended.

- As referenced in the City Auditor's Annual Report on City Services 2015-2016 and its 2012 Audit of Information Technology General Controls, ITD staffing (excluding the Call Center) is only about 1% of the City's total staffing versus an industry standard of 3% to 5% in local government.
- San José lacks project management staff to successfully execute City IT projects, characterized by 95%+ of projects missing their time, budget, business outcome, and user satisfaction targets. This is a structural deficit in the City's capabilities. Notably, existing annual project demands are almost 240% of available staff hours at full and stable staffing levels.
- The Information Technology Department's technical staff of 57 technical Full-Time Equivalent (FTE) positions support a portfolio of approximately 6,600 users, 300 servers, 200 business applications, 15,000 client devices, a large Municipal Area Network, and dozens of active projects.
- The City does not accrue funds to replace critical IT assets on a planned basis. Major replacements are treated as large one-time maintenance requests that often compete with higher-profile initiatives. This was also referenced in the City Auditor's 2016 Audit of Technology Deployments as an organizational need to address.
- The City reduced enterprise IT staffing from 157 FTE, including almost 100 technical FTE, in 2008 to the current level of 82.5 FTE, including 57 technical FTE, in 2017. This decline reflected significant budget reductions to address shortfalls, the decentralization of technical staff, and the elimination/downsizing of certain functions, such as the elimination of Contact Center staffing due to changes in the single family garbage billing program. This resulted in the decentralization of technology services across the City, as departments increased their IT staffs to ensure support for critical needs. In practice, the reductions established a type of equilibrium for minimum IT staffing in the City organization at 143.5 total technical FTE (57 in ITD, 86.5 in departments).

**Cybersecurity**—The City has made nominal investments into cybersecurity and information security compliance over the past ten years. The results include significant audit findings from external audits and serious recommendations from the City Auditor's Office. In today's environment and with the City's risk profile, the organization must invest to be ready for a serious breach and increasing cyber-related disasters. Organizations see costs in the millions of dollars when significant cybersecurity breaches occur—e.g., San Francisco Municipal Transportation Agency in November 2016; City of Baltimore, MD in April 2016.

**A Need to Modernize**—To its credit, the City funded and has made progress with a number of core system upgrades over the past three years. These include upgrades to and replacements of

human resources, talent acquisition, payroll, public safety dispatch, and productivity solutions. Projects for the new budget system, business tax system, and mobile computers for Police and Fire are in progress.

However, many critical systems remain end-of-life and without full replacement plans, such as server and storage infrastructure, the City's core network, the financials system, IT asset management and billing systems, disaster recovery/business resumption, and others. Limited annual funding does exist to replace parts and components of these assets and the City deserves credit for stretching the life of its IT hardware and software well-past engineered life. Nonetheless, these practices are not sustainable. 71% of the City's IT network, server, and storage assets are past engineered end-of-life and/or end-of-support. Further, the City averages one major outage per month related to the failure of aged equipment, which erodes staff and public confidence in City services.

**Project Execution**—In sampling 172 technology-related projects funded by the City of San José over the past three years, the data show the City meets its budget, schedule, business benefit, and positive outcome metrics in less than 5% of projects. The City does not maintain professional IT project staff as it does for engineering and transportation projects, instead relying on line staff or very expensive contract project managers. The outcomes and costs show current practices are insufficient. Resources go toward missed targets instead of building internal project capabilities. Indeed, most City technology projects reach completion only through the heroic efforts of a small number of dedicated employees. Both situations are unsustainable.

Despite resource constraints in the City, the organization is making needed progress across the initiatives recommended by the Mayor and City Council, and assigned by the City Manager. The City has begun the process of building project proficiency in the course of executing the Payroll, HR, Talent Acquisition, and Budgeting system upgrade (PU&BS), Workers' Compensation System replacement, and the Business Tax System replacement. Since initiating work six months ago, the IT Department completed its IT Strategic Plan work and initiated a Cybersecurity and compliance program in coordination with City Council, the City Manager, and City Departments. Status for specific items referred in the Smart City Vision memo includes:

**Category**

**Initial Implementation**

**IT Strategic Plan**

(ICT Master Plan +  
Organizational Redesign)

- Assessment and initial planning: Complete
- IT Leadership Coordination: Complete
- Communicate to Council: In Progress
- IT Advisory Input: Initiated

**CRM/SRM**  
(CRM + Neighborhood  
Dashboard)

- Contract Award: Complete
- Call Center Implementation: Complete
- Data & Vendor Integrations: In Progress
- Mobile App: In Progress
- Workflows: In Progress
- Marketing Agreement: In Progress
- Training: Planned

**Master Addressing  
Database**  
(Public Works)

- Contract Award: Scheduled for February
- Project Charter and Plan: After Award
- Project Kickoff: After Award

**Procurement  
Improvement**

- Demonstration Project: RFP Development Solution
- Demonstration Agreement: Evaluating Proposal

**ITD Hiring and  
Engagement**

- Accelerated Hiring Process: Complete
- Fill Vacancies: Continuous (36% rate is down to 16%)
- Improve Engagement: Continuous (Goal to improve from 8% to 50% by the next City Gallup Poll)

**Resolve Audits**

- Call Handling: In Progress
- General Controls: In Progress
- Technology Deployments: In Progress
- Mobile Devices: New
- Financials Statements: New

Looking forward, there is clear need to act to reduce the City's Tech Debt and to invest in innovation and technology capabilities now. Local governments face an exponential increase in amount of data, devices, and software services that organizations will use to meet increasing demands of constituents. The City's technology demonstration projects with Facebook, Silver Spring Networks, and East Side Union High School District; our data analytics initiatives; software licensing trends; and the City's Digital Inclusion efforts all validate the scale of those demands. Further, City departments are aware that the organization needs to invest in its technology and innovation capacities for the next economic downturn, enabling technology to serve as strategic tool and multiplier for when the City must again look to meet high service levels in the face of financial constraints.

This Innovation and Technology Strategic Plan presented lays the foundation that will enable the City to manage its current and future needs. It is a key step in the City's ability to drive and then sustain the City of San José Smart City Vision.

### **EVALUATION AND FOLLOW-UP**

This memorandum will not require any follow-up from Staff.

### **PUBLIC OUTREACH**

This item will be posted on the City's website for the March 2, 2017, Smart Cities and Service Improvement Committee agenda.

### **COORDINATION**

The memorandum has been coordinated with the City Manager's Budget Office, City Auditor's Office, and the Office of Civic Innovation and Digital Strategy.

### **COMMISSION RECOMMENDATION/INPUT**

The memorandum does not require input from a board or commission.

### **FISCAL/POLICY ALIGNMENT**

This action is consistent with the City's Fiscal Year 2016-2017 Operating Budget City Service Areas Delivery Framework for Performance Driven Government for Operational Services: 1) front line service delivery, 2) make improvements, and 3) Strategic Support's Effective Use of Technology.

### **COST SUMMARY/IMPLICATIONS**

Given the City's severe budget challenges over the past decade and the resulting inability to invest in its technology assets, functions, and skills, there is considerable Tech Debt to resolve if the organization is to achieve its Smart Cities goals. The IT Strategic Plan designates areas of investment and staff has completed research to support resource requests. Specific investments and their costs will be considered as part of the 2017-2018 budget process, taking into consideration the City's overall budget condition as well as city-wide and other departmental priorities.

### **BUDGET REFERENCE**

N/A

**CEQA**

Not a Project, File No. PP10-066 (a) Agreements and Contracts.

/s/  
ROB LLOYD  
Chief Information Officer

For questions, please contact Rob Lloyd, CIO at (408) 535-3500.