



INFORMATION & COMMUNICATION TECHNOLOGY PLAN

CITY & COUNTY OF SAN FRANCISCO FISCAL YEARS 2018-22

ACKNOWLEDGMENTS

COMMITTEE ON INFORMATION TECHNOLOGY (COIT)

Naomi M. Kelly, Charles Belle, London Breed, Ken Bukowski, Micki Callahan, Barbara Garcia, Luis Herrera, Harlan Kelly Jr., Anne Kronenberg, Ivar Satero, Alex Polvi, Ed Reiskin, Trent Rhorer, Ben Rosenfield, Melissa Whitehouse

COIT BUDGET & PERFORMANCE SUBCOMMITTEE

Kenneth Bukowski, Julia Dawson, Jaci Fong, Bella Fudym, Ashley Groffenberger, Chanda Ikeda, Bill Kim, Ian Law, Michael Liang, William Lee, Leo Levenson, Todd Rydstrom, Tajel Shah, Brian Strong, Lisa Walton

COIT STAFF

Matthias Jaime, Lily Liang

CITY DEPARTMENTS

Kate Howard, Mayor's Office
Joy Bonaguro, Chief Data Officer
Jay Nath, Chief Innovation Officer
Michael Pawluk, City Administrator's Office
Rachel Cukierman, Assessor-Recorder's Office
Jaci Fong, Contract Administration
Rob Henning, Contract Administration
Jack Wood, Controller's Office
Theresa Kao, Controller's Office
Jason Lally, Mayor's Office
Krista Canellakis, Mayor's Office
Rosa Sanchez, City Attorney
Nina D'Amato, Department of Technology
Joe Voje, Department of Technology
Hao Xie, Department of Technology
Ashley Meyers, Department of Technology
Dina Quesada, San Francisco International Airport
Julian Metcalf, Municipal Transportation Commission
Ted Yamasaki, Human Resources
Ken Salmon, Public Utilities Commission
Ephrem Naizghi, Public Works



TABLE OF CONTENTS

EXECUTIVE SUMMARY.....

5

INTRODUCTION.....

13

A Vision for Civic Technology.....

15

TECHNOLOGY IN CITY GOVERNMENT.....

19

Partners in Technology.....

20

Technology Accomplishments.....

24

STRATEGIC INITIATIVES & GOALS.....

29

Goal 1: Support, Maintain, and Secure Critical Infrastructure.....

32

Goal 2: Improve Efficiency and Effectiveness of City Operations.....

36

Goal 3: Increase Access and Transparency to Local Government.....

40

Upcoming Initiatives.....

45

FISCAL STRATEGIES.....

48

Budget Overview.....

48

Technology Project Forecast.....

52

Major IT Allocation.....

53

Annual Project Allocation.....

56

RECOMMENDATIONS.....

57



MESSAGE FROM THE COIT CHAIR

Dear Mayor Lee and Members of the Board of Supervisors:

I am pleased to submit the proposed City and County of San Francisco Information and Communication Technology (ICT) Plan. The ICT Plan describes the City's technology strategy to help guide our investments and initiatives for the next five years.

In the fourth iteration of the ICT Plan, we renew our focus on the role technology plays in delivering services throughout San Francisco. In every interaction we have with the public, our technology should help improve the lives of our residents and businesses.

Since the last ICT Plan, we have made substantial progress towards using technology to provide better services. Our investments are working to actively transform local government in a whole variety of different ways.

Examples of our progress are evident across the City. For instance, our efforts to improve the process to register new businesses led to the Treasure Tax Collector offering a new online registration process. We're also helping modernize our public safety agencies. Through our investments, our Fire vehicles now have quality connections to the Internet, enabling fire fighters to access the most up to date information in emergencies. Technology is also promoting transparency. Using the mobile application eStop, Police Officers will keep better records on the race and ethnicity on those detained, contributing to an overall effort to improve fairness and accountability.

The direction provided in the last plan also supported a major investment in a new city financial system, a project that impacts every department. Two years later, we are on the verge of moving onto a new financial system that will make government more transparent and will help us manage all of our programs more efficiently.

I am proud of our many accomplishments and look forward to a future that is even brighter. Looking ahead, I am pleased to say San Francisco has more tools to achieve our goals than ever before.

Over the next five years, the City is poised to continue our progress by investing a record amount of funds towards transformative technologies. The proposed FY 2018-22 ICT Plan recommends \$184.7 million in General Fund support to improve City services. Although the demand for technology investment continues to outpace available resources, the City is well positioned to invest in technologies with the most impact.

The next five years are an exciting time of investment and development. I am eager to see what we can accomplish together.

Sincerely,

Naomi Kelly
City Administrator

EXECUTIVE SUMMARY

PURPOSE OF THE PLAN

The Five-Year Information and Communication Technology Plan (ICT Plan) is required under the San Francisco Administrative Code section 22A.6. The ICT Plan is updated every other year to provide strategic direction for the City and County of San Francisco to plan, fund, and implement technology projects.

OVERVIEW

The fourth iteration of the City's ICT Plan presents a vision of improved City services through the enabled use of technology. Over the next five years, San Francisco will continue to build a community that is safe, diverse, and welcoming to all.



San Francisco technology supports easy to use and accessible services for every resident, visitor, business, and employee.

The City's vision is supported by three strategic goals which help to structure our work.

Goal 1 - Support, Maintain, and Secure Critical Infrastructure:

The City's technology infrastructure is the basic set of systems which support our operations and services. The City will ensure all our services, systems, and datasets are protected from cyber threat and disaster.

The following key thematic areas are leading efforts to support this goal:

Networks & Telecommunications – San Francisco's fiber network now extends 226 miles throughout the City and is a critical piece of infrastructure enabling the next generation of services. The City plans to connect every government building to fiber by 2025.

Data Centers - The City operates four separate data centers for use by all departments. The City is currently reexamining the value of maintaining data centers on the basis of cost, risk, and disaster recovery needs. Over the next five years, the City will continue to refine its data center strategy.

Cybersecurity - The mission of the City's Cybersecurity Program is to protect our connected critical infrastructure, manage risk, and contain and eradicate breaches. Over the next five years, the City will help build a shared governance model and the tools necessary to protect San Francisco from cyber threat.

Disaster Preparedness, Response, Recovery, and Resiliency (DPR3) - San Francisco is a city that is vulnerable from a multitude of threats, both man-made and natural. Within the next two years, departments will be responsible for developing a continuity of operations plan for their mission critical technology systems.

Goal 2 - Improve Efficiency and Effectiveness of City Operations:

When deployed properly, technology can help the City do more with less. Ultimately, technology should help avoid unnecessary costs, save time, and improve the delivery of City services.

In support of this goal, the following key thematic areas are helping to improve City operations:

Strategic Sourcing & Procurement – The purchase and acquisition of technologies and technical services continues to be an ongoing issue in government. Through the leadership of the Office of Contract Administration and the Department of Technology, the City is investigating ways to streamline procurement.

Hiring Technologists - The City is positioning itself as an employer of choice for top tech talent. The Department of Human Resources has partnered with the Department of Technology and other City departments to develop the TechHire program to help bring in more technology professionals throughout the City.

Data Strategy - The increased use of data can improve City services and ultimately lead to an increased quality of life for San Francisco residents, employers, employees and visitors. The DataSF team is working to streamline data access, boost the City's capacity to use data, and improve data management and governance.

Centralizing Customer Service – San Francisco services should be easy to access through simple help customer service centers. SF311 is the City's most prominent service center to help residents, visitors, and businesses better navigate through the City. Over the next several years, the City will continue to build other service portals to help connect customers to the services they need.

Goal 3 - Increase Access and Transparency to Local Government:

Technology can help improve access to City services and promote government transparency. A transparent government makes better decisions with services that are inclusive and universally accessible.

Over the next five years, the city will pursue the following strategic objectives:

Digital Services – The City is making a dramatic shift in service delivery. Led by the City’s first Chief Digital Services Officer, the City will redesign existing services from the ground up in an effort to provide more digital services. The mission of the Digital Services team is simple: to transform the customer’s experience to be beautiful, intuitive, and accessible to all.

Digital Inclusion - As more and more City services use technology, the City has a responsibility to make sure all residents have the skills, tools, and access to all services. Over the next five years, the City is committed to building a supportive and inclusive digital society. By bringing stakeholders together and coordinating effort, San Francisco aims to close the digital divide.



FUTURE INITIATIVES

The fourth iteration of the ICT Plan also highlights several new strategic initiatives which are to be developed more thoroughly over the next two years.

City Employee Experience is a citywide effort to improve the employee's experience using City technology. The City Employee Experience Strategy will re-evaluate the end-to-end experience and build processes that seamlessly integrate technology into City onboarding operations. Future work may include evaluating change management strategies and providing trainings. In the next year, a working group will provide recommendations and new strategies to improve how we onboard new employees to the City family.

Strategic Sourcing & Procurement has become increasingly complex for local government, especially in the purchase of new technologies. Over the next five years, the City seeks to re-examine our strategic sourcing strategies in an effort to streamline the procurement of technological goods and services. A Procurement Working Group composed of staff from the Office of Contract Administration, the Department of Technology, and the Controller's Office will be tasked with analyzing administrative barriers to technology procurement and strategies to streamline the purchasing process. The working group will provide recommendations and help spread successful innovations in an effort to make technology procurement quicker and easier.

Data Architecture is fundamental to leverage data and analytics across programs, services, and applications. Over the next two years, DataSF will team up with the Committee on Information Technology (COIT) to develop a strategy for a shared data architecture. This effort will ensure that our City works together to leverage upcoming technology investments in a coordinated effort build the base blocks to a shared data architecture.

Cybersecurity – Following a recently passed citywide policy, City departments are required to build their cybersecurity operations in an effort to better secure the City's systems and data. Each department will be required to adopt a cybersecurity framework, appoint departmental leadership, and participate in citywide security events.

Disaster Preparedness, Recovery, Response, and Resilience (DPR3) - The emphasis of the City's recently adopted DPR3 policy is to promote the resilience of critical IT infrastructure, minimize the effects of a disaster upon departmental operations, and restore critical IT services. Over the next two years, departments are required to develop a Continuity of Operations Plan by July 2017, and a complete plan by July 2018.



FISCAL STRATEGIES

A major purpose of the ICT Plan is to provide financial guidance for technology investment for the next five years.

In this update to the ICT Plan covering FY 2017-18 through FY 2021-22, COIT's allocation is greater than ever before with a projected allocation of approximately \$184.7 million of the General Fund. The addition of the Major IT Projects Allocation has especially contributed to COIT's expanded capacity to support City technology projects.

Figure 1: Projected COIT Allocation from FY 2017-18 through FY 2021-22

	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	TOTAL
Annual Projects	11.7	12.8	14.1	15.5	17.1	71.2
Major IT Projects	18.6	20.5	22.5	24.7	27.2	113.5
TOTAL	30.3	33.3	36.6	40.3	44.3	184.7

Note: All figures in \$ millions

Through these growing sources of funding, the City continues to pursue technology projects at a record rate. Over the next five years, departments are projected to pursue 152 different technology projects, with an estimated total cost of \$386.2 million.



MAJOR IT PROJECT RECOMMENDATIONS

To continue our progress and reach our strategic goals, COIT recommends all \$113.5 million of the Major IT Projects Allocation.

Although the Financial Systems Replacement project is on schedule to be complete in FY 2017-18, General Fund requests from the Public Safety & Public Service Radio Replacement and the Replacement of the Property Assessment & Tax System far outstrip available resources in the next two fiscal years. Only in FY 2019-20 does funding become available to address future Major IT Projects.

To adequately support implementation for each Major IT Project, COIT's funding recommendations will be determined on the basis of each project's impact, the current and future risk of deferring funding, as well as the department's readiness to implement.

Under current budget projections, COIT recommends funding the following projects:

1) Financial Systems Replacement Project (F\$P)

The City's new Financial System will be the system of record for accounting, budget control, purchasing, and financial reporting for all City departments. The F\$P is fully funded and is expected to go live in FY 2017-18



2) Public Safety & Public Service Radio Replacement

The Public Safety & Public Service Radio Replacement Project will upgrade the citywide radio communications system used primarily by the City's public safety agencies. The new technology will support over 7,000 mobile and handheld radios, with ten City departments and four outside agencies operating daily on the system.



3) Replacement of the Property Assessment & Tax System

The Assessor seeks to replace their property tax system in order to better support document capture, reporting, storage maintenance, conversion migration services and management.



4) Electronic Health Records (EHR)

A unified EHR system will allow the Department of Public Health to transition to performance based medicine and better track patients and service delivery outcomes.





The existing financial constraints require all available resources from the Major IT Allocation to support ongoing Major IT Projects. However, several future projects are currently being scoped out as potentially the City's next Major IT Project, including:

Voice over Internet Protocol (VoIP): The Department of Technology is investigating the options for replacing the City's telephone systems with VoIP solutions.

Citywide Customer Relationship Management: 311 is investigating the pursuit of a future CRM which could be used across more departments to better coordinate customer information and create a more seamless service experience across departments.

Voting System Replacement: The Department of Elections is currently investigating alternative voting systems, including the possibility of building an open-source system.

Universal Broadband: – The City is currently investigating options for providing gigabit speed internet connection to every household and business in San Francisco.

ANNUAL PROJECTS ALLOCATION

COIT also recommends the approval and funding of over \$71.2 million in General Fund dollars. However under current projections, COIT's allocation is insufficient to meet growing demand. Over the next five years, departments requested a total of \$134.0 million in General Fund support.

Due to finite resources, COIT evaluates all ICT Projects to determine the need, anticipated impact, and the department's readiness to implement. Among the highest technology priorities is maintenance of the City's network. A reliable and high capacity network is essential to continued operations. The Department of Technology's **Upgrade the Network Project** is intended to make the City's network more robust in support of City operations.

Recommendations

Over the next five years, the City will continue to act as a global leader in the delivery of government services. To address current and future needs, COIT recommends:

Recommendation 1: Continue to grow the Major IT Project Allocation and the Annual Project Allocations by 10 percent annually.

Recommendation 2: COIT should prioritize General Fund support for technology projects that align with ICT Plan goals.

Recommendation 3: A comprehensive planning and scoping phase should precede investment for future Major IT Projects to better understand total lifecycle costs and returns.

Recommendation 4: COIT should sequence funding of Major IT Projects on the basis of risk, project readiness, and cost-effectiveness.

Recommendation 5: COIT's allocations should support technology projects that replace or enhance existing services and promote eventual cost savings.

Recommendation 6: The City should set aside a separate funding source for the continual refreshment of IT hardware.

INTRODUCTION

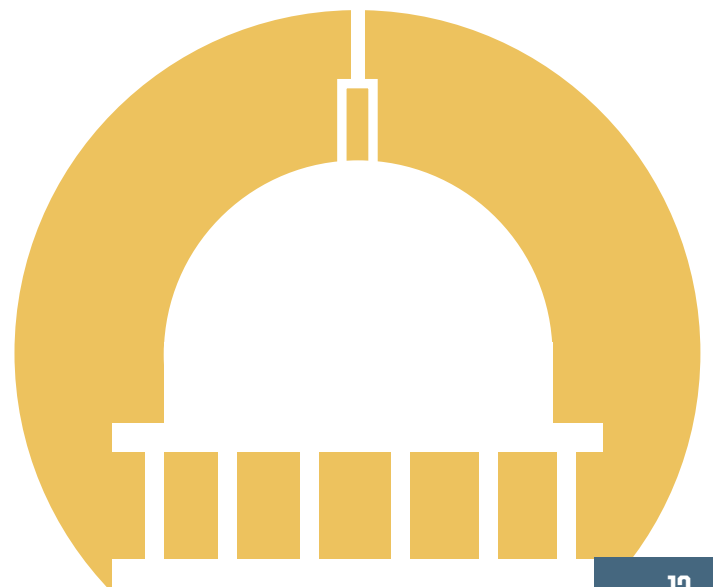
The Committee on Information Technology (COIT) is pleased to present to Mayor Ed Lee and the Board of Supervisors the City's Information and Communication Technology (ICT) Plan for fiscal years (FY) 2017-18 through FY 2021-22. In the fourth iteration of the City's ICT Plan, COIT builds off of previous plans to present a vision of improved City services through the enabled use of technology.

The ICT Plan provides strategic direction for the City and County of San Francisco to plan, fund, and implement technology projects over the next five years. Specifically, the ICT Plan is a tool to accomplish two main purposes:

- 1 – Identify areas of strategic importance and initiate collective action.**
- 2 – Provide direction for strategic investment.**

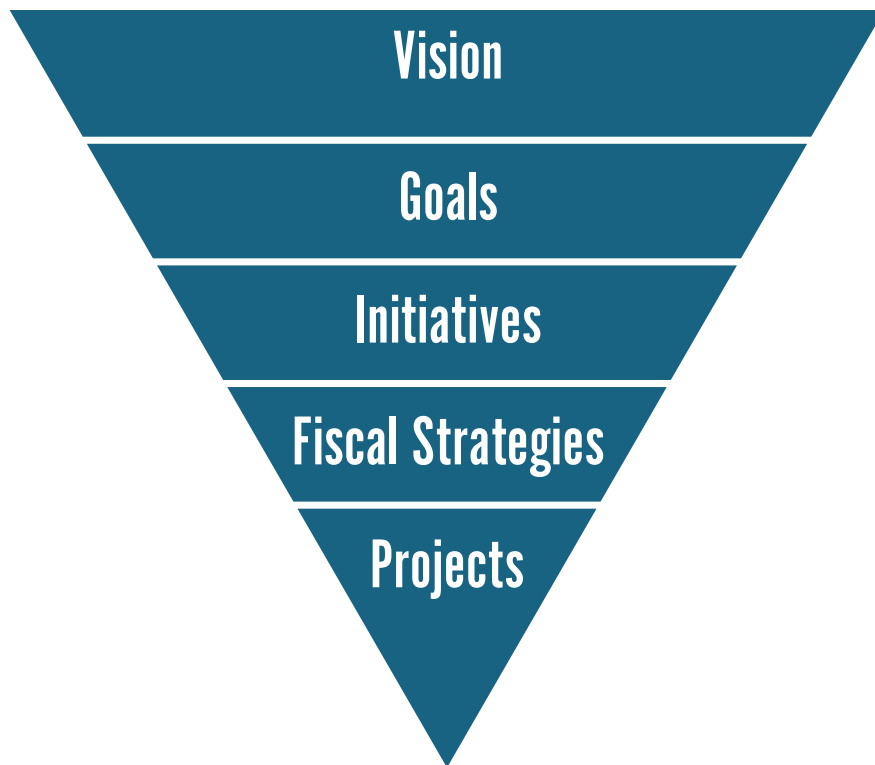
Over the next five years, the City will continue to make progress by leveraging technology to support improved service delivery. Ultimately, San Francisco's ICT Plan is a critical element towards achieving Mayor Ed Lee's vision of:

Residents and Families that Thrive
Clean, Safe, and Livable Communities
A City that is Diverse, Equitable, and Inclusive
Excellent City Services
A City and Region Prepared for the Future



TECHNOLOGY VISION

San Francisco technology supports easy to use and accessible services for every resident, visitor, business, and employees.



A VISION FOR CIVIC TECHNOLOGY

San Francisco is a community that values compassion. Throughout our history, our city has been a sanctuary for those seeking a better life. For many who had nowhere else to turn, San Francisco has become a welcome home.

The government of the City and County of San Francisco is an integral component to building a community that matches our values. Local services are a demonstration of our support and commitment to helping those in need and to building a stronger community. Through our collective efforts, we are creating a community we can be proud of, and one that will be even better tomorrow.

This year, Mayor Ed Lee described his vision for a stronger San Francisco. Capturing the values of community, equity, and service excellence, Mayor Lee's vision sets San Francisco on a path for greater prosperity for all.

Mayor Lee's vision includes:

1. Residents and Families that Thrive
2. Clean, Safe and Livable Communities
3. A Diverse, Equitable, and Inclusive City
4. Excellent City Services
5. A City and Region Prepared for the Future

Technology's promise is to help make this vision a reality. Through the better integration of technology, we can make local government more responsive and support sustainable business practices. In our effort to provide better services and to promote data-driven decisions, technology is an asset that can help us reach our shared goals.

The next evolution of government services will incorporate new technologies and streamline business processes to better serve City constituents: the residents, visitors, and businesses of San Francisco. Through the modernization of technology in the City's infrastructure and in everyday devices, the City's ability to provide and support our community grows.



BUILDING ON OUR ACCOMPLISHMENTS

Building a better San Francisco is an ongoing process. Just like building new software, the development of the ICT Plan is a process that requires continual review and adjustment.

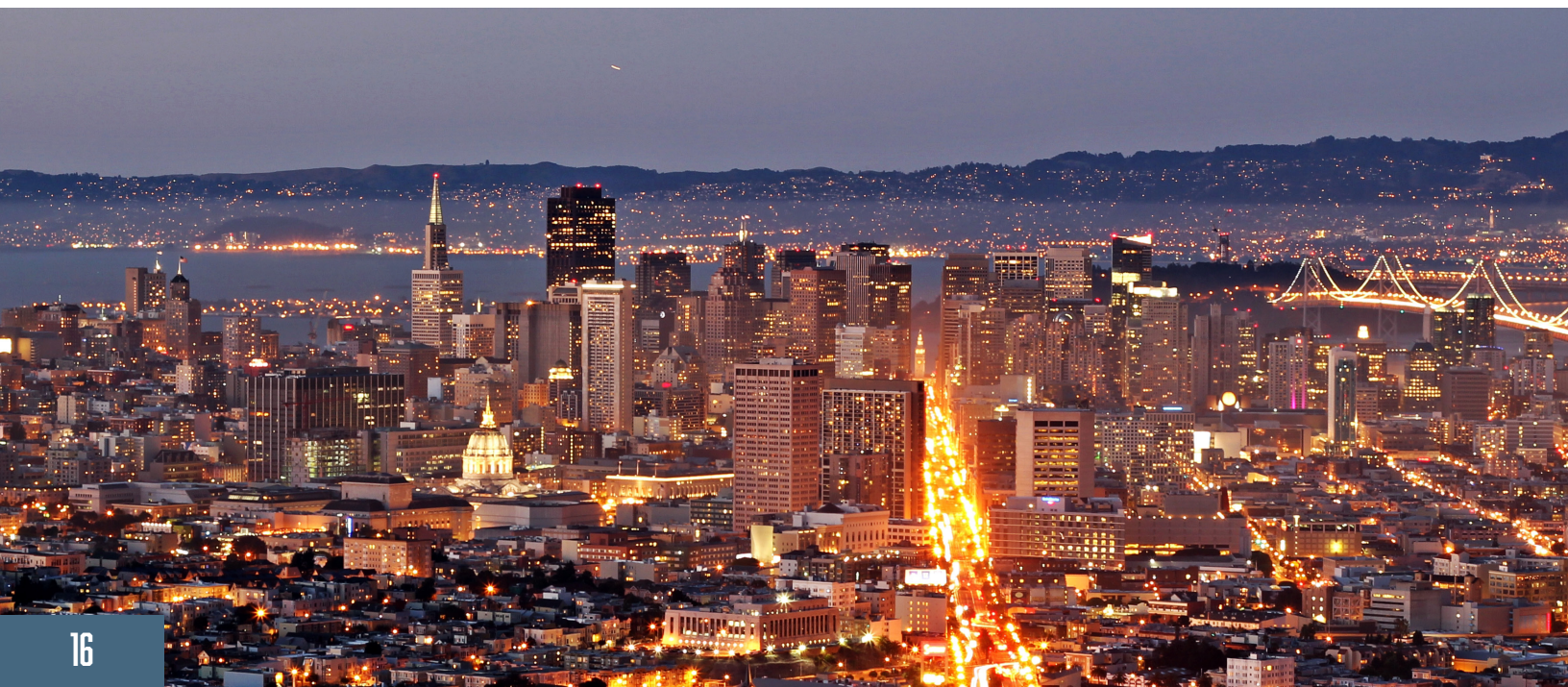
The ICT Plan is an opportunity to reassess where we are as a City, and to redirect efforts towards our most pressing needs. Since the last ICT Plan, San Francisco has funded technology projects throughout the City and made progress on key initiatives.

Some of our accomplishments in the last two years include:

Strategic Investments: San Francisco continues to demonstrate a commitment to modernize government through the increased use of technology. In the last two fiscal years alone, the City has used the General Fund to invest over \$135.5 million on 121 new technology projects. This level of funding represents a significant increase when compared to the \$48.2 million budgeted for 122 technology projects in FY 2013-14 and FY 2014-15. In particular, the critical investments to replace the City's financial system and the public service and public safety radio network account for a significant portion of additional funds. Transformative investments like these are helping modernize San Francisco services to be more accessible and easy to use.

Digital Services Strategy: Last year, the City released San Francisco's first Digital Services Strategy in an effort to improve the public's experience using City services. A new digital services team led by the Chief Digital Services Officer will work to redesign City services and transform how the City interacts with the public online. To read the digital services strategy, please visit: <http://digitalservices.sfgov.org/>

Shared Services Strategy: Enterprise technologies hold the promise of greater efficiencies across the City, both in terms of cost and operations. To continue the migration towards a common technology infrastructure, the Department of Technology is developing Shared Services Forums to better collaborate and incorporate department feedback. The new structure will feature a new governance model for key technology services including Voice over Internet Protocol (VoIP) and Data Centers, as well as enhanced transparency on performance measures.



The fourth iteration of the ICT Plan also highlights several new features. These changes aim to supplement our strategic efforts by adding depth and cohesiveness to our work ahead.

More Comprehensive Technology Assessment: Throughout 2016, the City engaged in extensive efforts to better measure the state of technology. This assessment included surveys of City employees, technology management, and the public in addition to multiple interviews, facilitated workshops, and public meetings. The results of this work is an unprecedented understanding of technology in San Francisco, which will be shared throughout the ICT Plan.

Redesigned Performance Measures: In the last ICT Plan, we began to introduce citywide performance metrics to measure our progress towards strategic goals. In this updated version, we revisit these performance metrics to make them more precise and orientated towards our common goals.

Strategic Objectives: In addition, our growing awareness of the City's technology revealed several sub-areas worthy of additional support and direction. Strategic objectives will help direct our efforts to become a more unified City directed towards the goal of improving City services.

THE ROAD AHEAD

Over the next five years, San Francisco will engage in new strategic initiatives and invest in key technologies. The next sections of the ICT Plan will describe some of our most recent accomplishments, followed by a review of our strategic initiatives and financial guidance for future investments.







TECHNOLOGY IN CITY GOVERNMENT

The value of technology in City operations is not only to maintain a base level of service but to grow and to be more responsive to the needs of our residents.

Over the last five years, San Francisco has made significant progress towards modernizing government. The following section provides an overview of our technology partners within City government and some of our most prominent

PARTNERS IN TECHNOLOGY

Modernizing government through technology is a major effort and requires tremendous support. Fortunately, San Francisco has several centers of excellence dedicated to making an impact.

The Committee on Information Technology (COIT)

The Committee on Information Technology is San Francisco's IT governance and policy making body. COIT's structure is intended to provide a forum for City leadership to coordinate and collaborate. Through regular public meetings, COIT is also a vehicle to share with residents and the public the state of technology in the City.

COIT is composed of five permanent members consisting of the Mayor, the President of the Board of Supervisors, the Controller, the City Administrator, and the City's Chief Information Officer. In addition, there are eight rotating seats held by department heads that represent each of the major service areas. Together, COIT members represent a working body that makes decisions regarding the future of the City's technology.

COIT's main responsibilities include:

Five-Year Strategic Plan: On a bi-annual basis, COIT is required to develop a five-year strategic plan describing the future of the City's technology. The plan is a financial and strategic document guiding the City's technology direction.

Financial Investments: COIT is responsible for recommending a portion of the General Fund towards technology projects every year. As required by the City's Administrative code, all new technology projects above \$100,000 must be reviewed and approved by COIT. Through the annual budget process, COIT allocates funding towards projects that support the overall vision and goals of the Mayor and the City.

Performance: COIT manages the City's technology portfolio by tracking project performance. By tracking each project's budget, schedule, scope, and key performance indicators, COIT acts as a central repository of knowledge on City technology.

Policy Development: COIT develops formal policy to guide the adoption and use of technologies. Governing policies are used to support strategic goals like cybersecurity and disaster preparedness, and also to achieve greater aspirational goals like environmental sustainability.

For more information on COIT, please visit: <http://sfcoit.org/>

Department of Technology

San Francisco's Department of Technology (DT) provides information technology services and supports critical technology infrastructure for approximately 30,000 employees and over 867,000 residents. DT aims to be the partner of choice for City departments by supporting the services that enhance the lives of the City's residents, businesses, and visitors.

As a citywide agency, DT supports five broad strategic areas:

Tech as a Service: As the technology partner for City departments, Tech as a Service focuses on delivering infrastructure needs as good as, if not better than, the marketplace. The first step is building a trusted relationship with our customers through attentive customer-first support services. Beyond support, DT is focused on deployment of modern infrastructure architecture and digital products we launch in the future.

Cybersecurity: The more connected the world, the greater and deeper the security threat. Cybersecurity is no longer a part-time job; it's a full-time priority. DT's cybersecurity program will help the City create a more robust technology infrastructure. DT is taking steps to secure our systems and data by establishing strong policies and practices and integrating tools that are best of breed.

Connectivity: Connectivity is foundational for city business and public prosperity, and broadband is an essential ingredient. In line with the City's Connectivity Plan, DT focuses on rapid deployment of a resilient fiber network, implementation of conduit through the Dig Once program, and maintenance of San Francisco's free wireless Internet service #SFWIFI.

Tech Talent: In order to build and maintain modern technologies and focus on transformative customer service, we have to recruit the right team, supported by the right leadership and the right resources. The ultimate objective is to establish DT, and the City and County of San Francisco generally, as an employer of choice for the current and future tech workforce.

Digital Service: The Digital Services Strategy focuses on aligning our current resources to deliver digital products that are best in the industry. DT has made significant improvements in this area with initiatives such as the San Francisco Business Portal and the upcoming Housing Portal. DT is focused on expanding these and similar efforts through a thoughtful staffing plan, close coordination with the City's constituency to understand their needs, and rapid development of new products and iterations of existing ones.

By investing in these initiatives, DT aims to provide high performance, resiliency, and reliability to the City and County of San Francisco.

The bedrock of these initiatives is DT's movement toward becoming a Shared Services Organization (SSO), a major initiative described in the previous ICT Plan.

The business objective of an SSO is to maximize the business value of the service portfolio by delivering the right internal IT products and services, at the right price, with the right performance levels.

The governance of this organization is founded on customer participation and client demand with a lens on solid innovative technologies that deliver value. Over the next five years, DT's transformation to an SSO will take an increasingly prominent role in promoting the efficient use of technology in a transparent and sustainable manner.



SAN FRANCISCO
DEPARTMENT OF
TECHNOLOGY

SF311: San Francisco Customer Service Center

The SF311 center provides an easy-to-remember telephone number that connects residents, businesses, and visitors to Customer Service Representatives ready to help with general government information and services. The easiest way to obtain information, report problems, or submit service requests to the City is through one of the many 311 contact channels.

SF311 maintains a comprehensive knowledge base of City services and works cooperatively with all departments to understand the department service offerings. SF311 has focused continually on simplifying processes, digitizing them when able, and allowing the public to reach the City through an expanding range of contact options.



Over the years, SF311 increased the options to help customers. Now residents and visitors have the option to contact SF311 through multiple channels. With multiple options, analysis shows that the public is increasingly using digital channels to request City services. For example, in 2016, 311 received a total 594,418 requests from residents and visitors, with almost 60% coming from Web and mobile options. SF311 continues to focus on the customer experience with recently launched website that allows for user accounts, an improved search, and simplified service request management.

For more information, visit <https://sf311.org/>

DataSF – Empower use of data for a better City

The mission of DataSF is to empower use of data, transforming the way the city works through the use of data. To do so, DataSF focuses its work on streamlining data access, boosting capacity to use data, and improving overall data management and governance in the City:

Streamline data access: If you can't access data, you can't use it. DataSF's goal is to remove dependencies on individual relationships and overworked IT staff by building out a shared infrastructure for efficiently and effectively accessing data. The DataSF team provides public data access through SF OpenData by automating data feeds and standardizing datasets. Through the Portal, DataSF annually updates City inventories of data systems and datasets.

Boost capacity to use data: Once you have access to data, you need to put it to good use. DataSF provides training in partnership with the Controller's City Services division to enhance skills in data analysis, visualization and tool use; assists with streamlining reporting via dashboarding tools; and demonstrating the power of advanced analytics via department client projects.

Improve data management and governance: Data quality, inconsistent data terms and lack of standard data management leads to both decreased trust in city data and extra effort to reconcile and combine datasets. In addition, data privacy concerns can complicate or limit the coordination and alignment of care across departments and other jurisdictions. DataSF provides City policies, standards and guidance on data management, quality, and dataset development. Through the ShareSF program, our Team is working to codify confidential data sharing by developing standard processes, policies, resources, and tools for sharing regulated data.

Visit DataSF's website at <https://datasf.org/>.

Mayor's Office of Civic Innovation (MOCI)

MOCI is a small team with a big vision: to make government more collaborative, inventive, and responsive. The MOCI team supports City departments by introducing new approaches, resources and technology for Mayoral priorities.

MOCI's key programs are dedicated towards this mission. Some of our most successful programs are:

Startup in Residence (STIR) connects government agencies with startups to develop technology products that address civic challenges. For 16 weeks, startups volunteer their time to work with government partners to get to the root of civic challenges through user-testing, skills-sharing, data analysis, and prototyping a technology product or service.

Civic Bridge recruits private sector professionals to volunteer 16 weeks of their time to work alongside government employees on critical City issues. Pro-bono, private-sector support can increase the City's capacity to identify and analyze pain points, provide agile and iterative solutions, as well as increase interest in cross-sector collaborations.

Superpublic is an Innovation Lab and collaborative space where federal, state, and city government come together with academia and the private sector to address policy and regulatory issues. In San Francisco, Superpublic works on three focus areas: Digital Services in Government, Urban Mobility, and Changing Models for Procurement.

Digital Services Office

More than ever before, residents now expect services to be available online. San Francisco's Digital Services Team promotes the development of new digital services to help improve the customer experience. Through comprehensive service redesign, the City seeks to streamline the customer service experience and make all services accessible and easy to use for everyone.

The Digital Services Office is a direct product of the Digital Services Strategy, a citywide effort identified and initiated in the last ICT Plan. Led by the City's Chief Digital Services Officer, the City's Digital Services Team will be responsible for building better digital products, working more effectively with vendors, and advising departments as they modernize their approach to digital delivery.

The Digital Services Team will be specialize in:

Engineering: Use modern software development methodologies with standardized stack to build sustainable, public-facing digital products. Support legacy applications.

UX/UI Design: Use human-centered design concepts to always put users first when designing websites or web applications. Support existing 100+ City websites with design requests.

Web Management: Build, design, maintain, and support 100+ City websites on the standard city template. Manage Drupal vendor pool for departments who want to build out custom sites.

Digital Accelerator: Rapid deployment of digital solutions on the Salesforce platform.

Geospatial Information Systems (GIS): Provide geospatial resources to city departments. Support the Chief Data Officer in providing addressing and base map services.

Product Management: Lead product development from ideation to launch.

TECHNOLOGY ACCOMPLISHMENTS

Through the work of our technology partners and each department's staff, the City has integrated technologies throughout our operations. Under each strategic goal, technology projects are helping to improve City operations.

Strategic Goal: Support, Maintain, and Secure Critical Infrastructure

In the last few years, departments across the City have completed a variety of strategic projects. In the last ICT Plan, 47 percent of the identified projects directly supported our goal to support critical infrastructure. This following list highlight a few of the more prominent accomplishments.

Financial System Project: The Office of the Controller has replaced the City's financial and accounting information system which was more than twenty-five years old and out of date. The project officially kicked off in July 2015, and the new system is scheduled to go-live in July 2017. The new system will not only replace current financial and accounting functionality, but will also include new functionality such as strategic sourcing, grants management, expense reporting, and supplier contract management.

Temporary Badges (T-Badge) Implementation:

The San Francisco International Airport developed the Temporary Access Badge System, a hands-free technological solution to manage and issue temporary badges in a quicker, easier, and more secure manner at checkpoints while maintaining compliance at security checkpoints. This tool is geared towards Airport staff, Security Access Office and Operators Public Service Aides staffing the airfield checkpoints. Temporary (T) badges will allow the Airport to identify all individuals who are accessing the secure areas, measure how frequently they are accessing these areas, as well as provide security vetting of those individuals prior to access.

eMerge Human Capital Management (HCM)

9.2 Upgrade: The Controller's Office recently completed a technical upgrade of the Citywide HCM application. This upgrade was a key performance upgrade and allowed for the expansion of absence management functionality and timesheet optimization. In conjunction with this upgrade, a new employee Portal was launched to enhance user experience and prepare for future citywide self-service functionality.

Upgrade the Network: Fix the Network has been renamed as Upgrade the Network. This program has multiple projects, each addressing specific network improvements such as routing, reliability, performance, security, and Wi-Fi capacity. In the latter part of 2016, new core internet firewalls were installed at both major data centers.

Increased Connectivity at Branches: In collaboration with the city fiber installation team at the Department of Technology, the Public Library IT team has converted over half of our facilities onto high speed network connectivity. These sites are connected on the network at Gigabit speed. In the next few years all public library facilities will use city fiber for network connectivity and increase the connection speed to 10Gb between sites. During this period, we plan to add a 2nd 10Gb link to the IPS for redundancy to provide robust internet connectivity for the entire library system. Also, the Public Library has been providing increased access to Wi-Fi across the City and in 2016 saw a 15% increase in daily users as compared to the prior year.

San Francisco General Hospital Network: The medical technology of the new hospital is cutting edge and has been connected by one of the most redundant and resilient data networks within any city owned building. A design strategy applying highly converged network design reduced the need to build separate complex data, security, and instrument networks. While saving a considerable amount of money avoiding many separate private networks for data, security, telephones and building controls, the DPH IT team built massive bandwidth and capacity into the Medical Grade Network with additional layers of redundancy and alternate paths of connectivity.

Strategic Goal: Improve Efficiency and Effectiveness of City Operations

The City has completed a number of technology projects that promise to improve our operations. In the last ICT Plan, 42 percent of all projects supported this strategic goal. The following list highlight some of the most recent accomplishments.

TaxiQ - Taxi Management: The Taxi Shorts mobile application, TaxiQ, provides taxi drivers the ability to better plan their workdays at SFO. Moving taxi cabs from ‘operating in the blind’ to ‘operating on demand’ helps the Airport moderate its roadway and serve its passengers better.

eMerge Enterprise Learning Management (ELM): The ELM application also underwent a technical upgrade to bring the application to the latest version of the product, which will allow for additional configuration and enhancements scheduled to be completed during 2017. Moreover, approximately 2,400 additional employees were on boarded onto self-service time reporting.

Department of Public Health Voice over Internet Protocol (VoIP): In May 2016, the Department of Technology completed a high-visibility deployment of VoIP at Zuckerberg SF General Hospital. Close to 3,000 end-points (handsets) were installed, many with video conferencing capabilities. Wireless handsets enable health workers to communicate while mobile. DT is planning to migrate twelve clinics to VoIP in 2017.

Electronic Patient Care Reporting (ECPR)

Upgrade: The Fire Department report writing system for medical incidents was outdated, difficult to use and resulted in extended documentation time at the end of the calls. The new web-based system makes use of the new wireless infrastructure, allows for better communication with 12-lead EKG, defibrillators, other ePCR tablets, and the receiving hospitals. The new upgrade has also improved the reliability of data capture and transmission to the Department’s billing company, improving the ability for the Department to collect revenues.

SharePoint Records Management: Using the base platform SharePoint, the Public Utilities Commission implemented a new Records Management system which has the ability to support the Record Management teams as well as be easy to use for all SFPUC staff for filing and retrieving records.

Online New Business Registration: The launch of online New Business Registration at the beginning of 2016 marks a major milestone in the Treasurer Tax Collector’s work to enhance systems to improve tax compliance and ease doing business in San Francisco. Online New Business Registration allows businesses of all sizes to establish a business on a computer, smartphone or tablet in minutes without stepping foot in City Hall, or waiting for a mail-in process. In the first seven months of go live, over 30,000 businesses registered compared to the prior year with 10,000 new applications; 80% of the new businesses that registered online were activated within 45 seconds.





Strategic Goal: Increase Access and Transparency to Government

In the last ICT Plan, 10 percent of all projects supported our goal to improve access to services and overall transparency. Some of our major accomplishments include:

Department of Human Resources Website:

In July 2016, the Department of Human Resources launched a new redesigned website. Since that time the website has over 1.7 million views. The DHR website is the central website for all information for the recruitment of new employees as well as resources for existing and previous employees. As part of the development of the new website, DHR worked to identify and present in plain language the most useful information for all visitors to our site. Other websites recently launched by DHR include the City's SF Fellows and SF Civic Tech programs.

Wi-Fi Improvements (Passenger and Operational):

Since 2013, SFO has worked towards improving its Airport Service Quality Survey score for public Wi-Fi services which was reported at 3.55 out of 5.0. To transform the quality of this vital passenger experience, the Airport Director instituted an aggressive program to retake control of its public Wi-Fi service and to address demand for operational Wi-Fi service. The Wi-Fi project team took on a "user first" philosophy and developed a Wi-Fi service from the point of view of the Airport's passengers and visitors.

Mobile Data Terminal Replacement: The Fire Department Mobile Data Computer equipment in the fire apparatus was outdated and no longer being supported by the manufacturer. The new replacement MDC provides a reliable system that is scalable, supports modern mapping applications, and is easily upgradable as newer technologies becomes available. Additionally, the new MDC supports current operating systems in compliance with IT security industry standards.

Fire Vehicle Modems The Fire Department's private radio wireless infrastructure was inadequate to support modern applications with high bandwidth network requirements. In combination with the MDC replacement project, this new wireless broadband LTE infrastructure provides a fast, secure, and reliable network. As an additional failover measure the legacy radio network will remain available in case of a catastrophic failure of the primary network. This new configuration can be managed remotely which minimizes the down time for maintenance of emergency vehicles. newer technologies becomes available. Additionally, the new MDC supports current operating systems in compliance with IT security industry standards.

Commuter Shuttle Tracking System: One of the most common feedback that members of the public provided during the Commuter Shuttle Pilot Program concerned the incompatibility of large shuttle vehicles with San Francisco's small, residential streets. Using the Tracking System, SFMTA now has the ability to track all vehicles registered in the Commuter Shuttle Program whenever they are travelling on San Francisco streets. Shuttle companies are required to send real-time GPS data to the SFMTA whenever they operate registered shuttle vehicles within San Francisco.

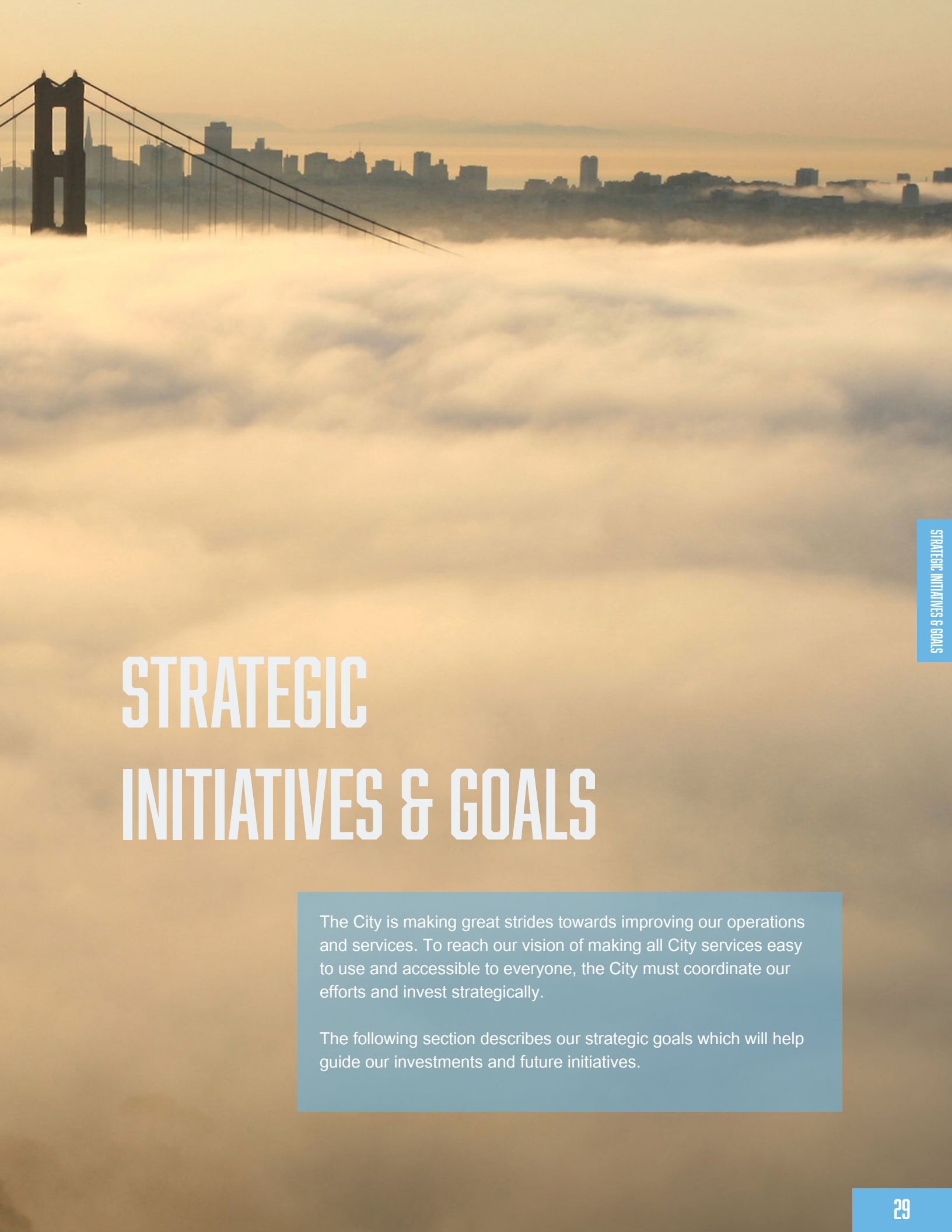
Body Worn Cameras: Furthering San Francisco's commitment to conform to the standards set forth in the President's 21st Century Policing report, the SFPD this year implemented Body Cameras for use by its 2,000+ sworn police officers. The use of Body Worn Cameras (BWC) is an effective tool a law enforcement agency can use to demonstrate its commitment to transparency, ensure the accountability of its

members, increase the public's trust in officers, and protect its members from unjustified complaints of misconduct.

eStops: In compliance with the new state Assembly Bill 953 and our local Board of Supervisors' ordinance 96.A, the San Francisco Police Department moved quickly to implement a new smart phone app to begin tracking the race and ethnicity of those stopped and detained for any reason. Called eStops, the new app allows officers to connect directly to the department's core law enforcement system called Crime Data Warehouse. Not only are all stops recorded, but they are recorded instantly when the officer presses enter on his or her phone. That stop can then be reported, counted, tracked, and analyzed immediately. San Francisco is the first law enforcement agency in California to implement such an app on a smart phone. Our departmental smart phones are now being used both for the eStops app as well as several other mobile applications that allow officers to identify suspects, enter police reports, map crime, and many other functions that were previously only available on the police station computers.







STRATEGIC INITIATIVES & GOALS

The City is making great strides towards improving our operations and services. To reach our vision of making all City services easy to use and accessible to everyone, the City must coordinate our efforts and invest strategically.

The following section describes our strategic goals which will help guide our investments and future initiatives.

MAKING FORWARD PROGRESS

San Francisco’s technology is guided by three strategic goals. As described in previous versions of the ICT Plan, the City’s goals are:

- 1) Support, Maintain, and Secure Critical Infrastructure
- 2) Improve Efficiency and Effectiveness of City Operations
- 3) Increase Access and Transparency to Local Government

These three strategic goals help shape our investment decisions and our work. Our goals set a direction for our future activities but can also act as a benchmark on how we are performing.

In this version of the ICT Plan, we asked members of the public as well as City staff to submit their views on City technology. Although the survey results are not representative of all of San Francisco, we feel it is important to provide an avenue for public input into the development of the City’s technology plan.

We were particularly eager for public input regarding our strategic goals. Reviewing the results from each group, our stakeholders agree that supporting and securing our critical IT infrastructure remains the City’s highest priority.

Figure 1: Public Input - Percent that strongly agree on the importance of each strategic goal

Support, Maintain, and Secure Critical Infrastructure	86%
Improve Efficiency and Effectiveness	84%
Increase Access and Transparency	78%

NOTE: COIT opened an online questionnaire from October 31, 2016 through January 18, 2017 to solicit public input on the state of City technology. A total of 372 responses were received.

City Input – Percent ranking of each goal by highest priority

Support, Maintain, and Secure Critical Infrastructure	86%
Improve Efficiency and Effectiveness	32%
Increase Access and Transparency	17.5%

NOTE: A total of 40 responses were received from City Staff.

Each strategic goal also provides an opportunity to benchmark our progress towards reaching our overall vision. Building off the feedback provided by our stakeholders, the following sections dissect each goal in an effort to better describe the current state of technology.

In the FY18-22 ICT Plan, the City asked for public input on the performance of City technology. The results are not representative of the overall City but do provide insights into key issue areas.

The following metrics serve as initial benchmarks to guide our future technology efforts. In particular, the feedback provided on our funding strategies led to more detailed descriptions in this version of the ICT Plan. In future years, we will continue to incorporate feedback from residents and businesses to improve our technology strategic plans.

In its daily operations, the City uses a wide variety of technologies including computers, websites, and databases. In my experience, the City's technology is modern and well-maintained.



I am comfortable providing my personal information to the City, and trust my information will be secured and kept private.



City services are available when I need them.



In general, when I submit information to the City, I get a response right away.



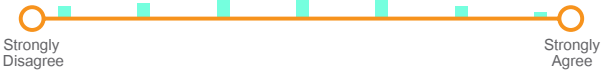
When I submit my information for a service, the City will remember me next time I use the service again.



City services are noticeably faster and more efficient than 5 years ago.



When I have a question about the City, I know where to get the answer.



I have a strong understanding of how the City decides what programs and technologies to fund.



When visiting City websites, I can find what I'm looking for quickly and easily.



GOAL 1: SUPPORT, MAINTAIN, AND SECURE CRITICAL INFRASTRUCTURE

The City's technology infrastructure is the basic set of systems which support our operations and services. Similar to capital infrastructure and the construction costs associated with maintenance of roads and buildings, technology infrastructure requires continual investment to ensure mission critical systems are available at all times.

Key to achieving this goal is securing our critical infrastructure from cyber threats and from disasters. The City is committed to making sure all our services, systems, and datasets are protected from disruption, both man-made and natural.

Over the next five years, departments have proposed a total of \$234.8 million in ICT projects that support critical IT infrastructure. Overall, 62 out of all 152 requests support of Goal 1, comprising 40 percent of the City's future ICT projects.

Strategic Objectives

The City's goal to support, maintain, and secure critical infrastructure is supported by several key objectives. The following objectives are led by different centers in the City, with individual strategy that support the City's overall technology efforts.

Network & Telecommunications

The City's fiber-optic network supports operations throughout San Francisco. With over 226 miles, our network is a critical piece of infrastructure enabling the next generation of City services. The presence of such an extensive network is a major asset to provide gigabit Internet speeds to City departments and non-profits.

The network is an opportunity to modernize our operations through the replacement of our phone systems to Voice-over-Internet Protocol (VoIP), the expansion of #SFWiFi, and the creation of additional digital services.

Over the next five years, the City will continue to expand fiber with the objective of connecting all City buildings by 2025.

THE CITY PROVIDES INTERNET
SERVICE FOR **25**
DEPARTMENTS
OUT OF 54 TOTAL
DEPARTMENTS.

25

DEPARTMENTS USE CITY DATA CENTERS TO SUPPORT THEIR BUSINESS OPERATIONS.

Data Centers

In an effort to streamline costs to procure and maintain servers, the City operates four separate data centers. Departments from across the City leverage these assets to support their operations and warehouse their data.

As more private companies compete to provide cloud services, the City will re-examine the value of maintaining independent data centers versus subscribing to hosted solutions. Over the next five years, the City will continue to refine the citywide strategy for its datacenters.

Cybersecurity

The mission of the City's Cybersecurity Program is to protect connected critical infrastructure, manage risk, and contain and eradicate compromises. Led by the City's Chief Information Security Officer (CISO), the cybersecurity program protects San Francisco from malicious digital activities. Housed within the Department of Technology, the City CISO helps train, protect, and respond to cyber threats.

Currently, cybersecurity operations across the City are at different stages of operation. In 2016, the Committee on Information Technology (COIT) passed a cybersecurity policy to promote better security practices throughout city agencies.

Over the next five years, the City CISO will help develop a shared governance model and build out the tools necessary to protect San Francisco from cyber threat. Read the City's security policy: <http://sfcoit.org/coit-policies>

THE CITY'S CHIEF INFORMATION SECURITY OFFICER (CISO) WORKS WITH 10 OTHER SECURITY OFFICERS IN PEER DEPARTMENTS TO ACTIVELY PROTECT SYSTEMS AND DATA.

Disaster Preparedness, Response, Recovery, & Resilience

San Francisco is a city that is vulnerable from a multitude of threats. As an international city located on multiple fault lines, a disaster either man-made or natural is inevitable. Several offices are charged with actively preparing San Francisco including:

- the Department of Emergency Management,
- the City's Chief Resiliency Officer,
- the Controller's Office,
- and the City's Chief Information Security Officer.

In 2016, COIT passed a citywide policy requiring each department to develop a continuity of operations plan for their technology systems, the City will be actively engaged to be prepared for a disaster.

Over the next two years, each department will be responsible for developing an agency specific plan.



As a strategic goal, the City must ensure the continuity of the City's operations. To measure our growing capacity to support and secure our critical infrastructure, the following performance metrics will track our progress moving forward.

Goal 1: Support, Maintain, & Secure Critical Infrastructure

Networks & Telecommunications: Maintain maximum availability of network and telecommunications systems.

Key Performance Indicator:

- Public safety radio communications, which support 911 radio systems, are maintained available 99.99% of the time.
- 80% of network installations and repairs completed within established timeline.

Cybersecurity: Increase awareness of cybersecurity best practices and establish risk management strategies citywide.

Key Performance Indicator:

- 100% of departments have adopted a major cybersecurity framework by 2018.
- 80% of departments represented in quarterly security roundtable.

Disaster Preparedness, Recovery, Response, and Resiliency (DPR3): Increase the City's preparedness and resilience for an eventual disaster.

Key Performance Indicator:

- 100% IT Continuity of Operation Plans (COOP) completed by department July 2018.
- 80% of departments represented in quarterly security roundtable.

Over the next five years, the Committee on Information Technology will track all ICT performance measures on their website at <http://ictplan.sfgov.org/>

Upcoming City Projects - Support, Maintain, and Secure Critical Infrastructure

Radio Replacement Project Department of Emergency Management

5-year Budget: \$31,765,327

Projected Completion Date: FY 2020-21

This project is upgrading the Citywide 800 MHz Emergency Radio Communications System used throughout San Francisco by the City's public safety and public service agencies. The City currently has several disparate radio systems, for public safety, public service, and the airport, that are at the end of their service life. The project will combine all users onto one shared network, with more capacity and better coverage throughout the City. The new technology will support over 9,000 mobile and handheld radios, with over 20 City departments and outside agencies operating daily on the system.

Cybersecurity – Identity & Access Management (IAM) Department of Technology

5-year Budget: \$902,000

Projected Completion Date: FY 2018-19

The City's Oracle IAM system will support IT governance and compliance through access management and directory services. IAM defines each user, manages what users can and cannot do, and provides audits and reports on this information. In the future, IAM will be used to implement dual-factor authentication.

Public Wi-Fi Terminals San Francisco International Airport

5-year Budget: \$4,750,000

Projected Completion Date: FY 2019-20

The Airport will assess the current state of public Wi-Fi infrastructure and upgrade it to support requirements for robust Wi-Fi services in all terminals. This project will increase Wi-Fi speed and increase Wi-Fi coverage, remove advertisements, provide a more user friendly interface.

Citywide Web Content Management migration to Drupal - Department of Technology

5-year Budget: \$2,757,000

Projected Completion Date: FY 2019-20

The City recently completed the migration of 100+ City websites to a new web content management solution, Drupal 7. A major success of the project was the adoption of an open source solution that will deliver savings over the long term. Given the accomplishments, this project was recognized by the Center for Digital Government as one of the Best of the Web winners in 2016. In the next phase of the project, the Department of Technology will upgrade the Citywide enterprise web content management system to Drupal 8.

Replace End of Life Cisco VoIP system Recreation and Parks Department

5-year Budget: \$600,000

Projected Completion Date: FY 2017-18

The current phone system is at the end of life. The Recreation and Parks Department is eager to transition to a Voice over Internet Protocol (VoIP) system for the substantial cost savings promised. Working with the Department of Technology, the Department will investigate various options.

Mainframe Environment Refresh Department of Technology

5-year Budget: \$4,532,603

Projected Completion Date: FY 2018-19

The City's mainframe infrastructure has reached its end of life. The Department of Technology is analyzing various scenarios to identify the most cost-effective architecture to support the mainframe computing requirements. If there is a failure on these devices, there is the possibility of extended outages or complete loss of the systems. The objective of the project is to implement the selected mainframe architecture while minimizing impact to the CCSF client departments.

GOAL 2: IMPROVE EFFICIENCY AND EFFECTIVENESS OF CITY OPERATIONS

The City's second Strategic ICT Goal is to more efficiently use City resources and make services more effective. When deployed properly, technology can help the City do more with less. Ultimately, projects that support this goal should lower costs, save time, and improve the delivery of City services.

Over the next five years, departments have proposed a total of \$124.1 million in ICT projects that support critical IT infrastructure. Overall, 64 out of all 152 requests support of Goal 2, comprising 42 percent of the City's future ICT projects.

Strategic Objectives

Improving efficiency and effectiveness is a primary goal of a large variety of technology projects. The following objectives are key efforts that provide additional structure to reaching our goal of improved City services.

Hiring Technologists

San Francisco's technology operations cannot function without skilled professionals. As the City becomes more technologically advanced, our need for skilled professionals grows.

The City is positioning itself as an employer of choice for top tech talent. The Department of Human Resources has partnered with the Department of Technology and other City departments to develop the TechHire program to help bring in more technology professionals throughout the City.

The TechHire program pairs a marketing campaign with changes to the City's hiring practices that will improve its ability to hire and retain top tech talent. Over the next year, the City's Department of Human Resources will provide updates on progress through monthly video presentations, human resources professionals meetings, and forums through their site at:
<http://sfdhr.org/sfcivicttech>

IN FY 2016-17, CITY DEPARTMENTS
HAD **219**
TECHNOLOGY POSITION
VACANCIES, OUT OF A TOTAL OF
1,536 TECHNOLOGY POSITIONS
ACROSS THE CITY.

2016 SAN FRANCISCO CITY CIO SURVEY: TOP PROCUREMENT ISSUES

1. STREAMLINE PROCUREMENT PROCESS
2. REVIEW CIO REVIEW PROCESS
3. ADD MORE VENDORS TO THE CITY'S TECHNOLOGY MARKETPLACE*

The Technology Market is a procurement vehicle that pre-approves a select number of vendors to help streamline the procurement process. For more information, please visit: <http://sfgov.org/oca/technology-marketplace-1>

Strategic Sourcing & Procurement

The purchase of goods and services is often described as a pain point when working with government. In order to run efficient operations, the City must be able to purchase tools and equipment. Yet as a community member too, the City has a responsibility to uphold social goals and values.

In the next five years, the City will re-examine its procurement practices in an effort to uphold fair and competitive practices, while streamlining the procurement process.

Data Strategy

To modernize our government, the City must do a better job of collecting and using data to drive decisions. Key to a vision of a data-driven City is promoting data access, use, and governance.

Led by the City's Chief Data Officer, the DataSF team is engaged in citywide efforts to capture the full potential of data. Over the last several years, the DataSF team has advanced a shared data architecture for the City through the Open Data Portal, with 50% of inventoried datasets published. Other programs like Data Academy, held in partnership with the Controller's Office, help increase internal capacity to leverage data and analytics more effectively through training.

Other efforts include promoting department stat and dashboarding tools and ensuring effective and efficient data governance. DataSF will also expand its scope to support advanced analytics.

Visit their website at <https://datasf.org/>.

OFFERED IN
PARTNERSHIP WITH THE
CONTROLLER'S OFFICE
AND DATASF, MORE THAN
90% OF RESPONDENTS
RATE DATA ACADEMY
COURSES AS EXCELLENT
OR GOOD

STRATEGIC INITIATIVES & GOALS

IN FY 2015-16 **89%**
OF SF311 CALLS WERE
ANSWERED WITHOUT
TRANSFERRING TO ANOTHER
SERVICE REPRESENTATIVE.

Centralizing Customer Service

San Francisco has 54 City departments all with a variety of different services. Navigating between departments can sometimes be confusing, especially for people unfamiliar with City services.

SF311 was built as a central service center to help residents, visitors, and businesses better navigate through the City. SF311 maintains a comprehensive knowledge base of City services and works cooperatively with all departments to understand the department service offerings. Through their services, City customers have an easy resource to get answers.

Over the next several years, the City will continue to expand other service portals to help connect customers to the services they need.

Improving the efficiency of City operations is a major goal of our investments. To measure our progress in becoming more efficient and effective, the following performance metrics will be used.

Goal 2: Improve Efficiency & Effectiveness of City Operations

Strategic Sourcing & Procurement: Make the acquisition of technology products and technical services

Key Performance Indicator:

- Increase department participation on existing Enterprise License Agreements.
- Increase the number of departments using electronic signatures.

Hiring: Become the employer of choice in San Francisco by improving recruitment, retainment, and training of skilled professionals.

Key Performance Indicator:

- Maintain technologists' vacancy rate below 15% for each Major Service Area.
- Increase participation in TechHire program.

Service Center: Increase the availability of central service centers that connect customers to City services.

Key Performance Indicator:

- Maintain a quality assurance score of 92% for all 311 services.
- Answer 90% of 311 calls without transfer to another service representative.

Over the next five years, the Committee on Information Technology will track all ICT performance measures on their website at <http://ictplan.sfgov.org/>



Upcoming City Projects - Improve Efficiency and Effectiveness of City Operations

Financial Systems Replacement Office of the Controller

5-year Budget: Fully Funded

Projected Completion Date: FY 2017-18

The replacement of the City's existing financial system to Oracle PeopleSoft is scheduled to go-live on July 2017. In the next phase of the project, the Controller's Office will continue to build integrations to department systems and expand on various modules. Further, the Controller's Office will merge their Human Capital Management and Financial Systems Operations into one production environment.

Property Assessment & Tax Systems Replacement Office of the Assessor-Recorder

5-year Budget: \$47,449,769

Projected Completion Date: FY 2021-22

The project is a joint endeavor between the Office of the Assessor-Recorder, the Treasurer & Tax Collector, and Office of the Controller to secure and modernize the City's property tax functions by replacing legacy systems that enable the assessment and collection of approximately \$2.5 billion in annual property tax revenues.

Information Integration System San Francisco International Airport

5-year Budget: \$1,600,000

Projected Completion Date: FY 2020-21

This initiative is to design and implement an enabling IT platform for SFO to deliver a comprehensive set of data services that enables the Airport's business community to improve business operations through real-time collaboration, automation and monitoring of relevant business events throughout the airport. This will be accomplished by consolidating existing and new disparate data sources into common interfaces and enabling the business to re-use and re-purpose the data to achieve new business insights with the use of analytic and visualization tools.

Legislative Management System Board of Supervisors

5-year Budget: \$390,000

Projected Completion Date: FY 2018-19

A new Legislative Management System is needed to replace the existing system with a stable, maintained, and customized solution. The new system will feature mandated requirements and help to improve the legislative workflow process. Led by the Clerk of the Board, the new system will streamline the process of drafting, submitting, and accessing status of legislation, developing and managing public meeting agenda, and ensuring the integrity and retention of legislative records.

Online Navigation and Entry (ONE System) Department of Homelessness and Supportive Housing

5-year Budget: \$2,075,227

Projected Completion Date: FY 2017-18

In support of one of the Mayor's major initiatives, the new Department of Homelessness and Supportive Housing was created with the singular focus on preventing and ending homelessness for people in San Francisco. The ONE System is instrumental towards achieving this goal and will be the primary system enabling the coordinated care of homeless households city-wide, and will enable a Coordinated Entry System to prioritize all homeless households.

Mainframe Environment Refresh Department of Technology

5-year Budget: \$4,532,603

Projected Completion Date: FY 2018-19

Homelessness continues to be an intractable problem in the City and County of San Francisco. MACCS will establish a data sharing platform that can be used as both a real-time care management tool that links information across agencies and disciplines and an integrated data system for analysis and monitoring. The system will also help to develop and implement a multi-agency universal assessment tool to evaluate the needs of each homeless San Franciscan and provide a foundation for a citywide Navigation System, which aligns shelter and housing resources and creates system-wide priorities and data to match people in need with the right housing intervention.

GOAL 3: INCREASE ACCESS AND TRANSPARENCY TO LOCAL GOVERNMENT

The City highly prioritizes ICT projects that improve access to City services and promote government transparency. This goal is especially important since the City uses public money and is accountable to taxpayers. Towards this end, technology has the potential to make government services more inclusive and accessible.

An increasingly important avenue to access City services is through department's websites. San Francisco residents expect the Internet to be a resource on City information and increasingly expect online services such as filling out forms or receiving notifications to be available.

Over the next five years, departments have proposed a total of \$27.2 million in ICT projects that support critical IT infrastructure. Overall, 26 out of all 152 requests support of Goal 1, comprising 17 percent of the City's future ICT projects.

Strategic Objectives

21 CITY DEPARTMENTS
HAVE HAD RECENT WEBSITE
REDESIGNS.

14 WERE REDESIGNED WITHIN
THE LAST TWO YEARS

9 ARE IN CURRENT NEED OF
REDESIGN

Digital Services

Imagine a city where a teenager in the Bayview could log on and search for a summer internship from his cell phone, allowing him to gain valuable job training for a future career. Or a family in the Mission could apply for affordable housing from a computer at their local library. Or an aspiring café owner could apply for and track every permit for her business online on a City website.

The City is committed to achieving this vision through transformative service redesign. The launch of the Digital Services Strategy is our first step towards making each of these scenarios a reality.

The mission of the Digital Services Team is to do more than just build websites. The primary responsibility of the Chief Digital Services Officer will be to help departments redesign existing services from the ground up and build services to be digital by default.

Over the next year, the City will begin to build and redesign our services to make them simpler and faster. Ultimately, we want every resident, visitor, and business to feel confident that whenever they need something from the City, they can get it quickly and easily.

Read the Digital Services Strategy in Appendix K or visit the website at <http://digitalservices.sfgov.org/>.

Digital Inclusion

San Francisco has a rich history of investing in digital inclusion and helping to expand Internet access across the City. Through our programs with the Public Library, the SFConnected program, and TechSF, the City is actively training and exposing thousands of residents to digital tools.

As more and more of City services use technology, the City has a responsibility to make sure all residents have the tools and the access to all services.

Over the next five years, the City is committed to building a supportive and inclusive digital society. By bringing stakeholders together and coordinating effort, San Francisco aims to close the digital divide.

FROM JULY 2015 TO JUNE 2016:

SAN FRANCISCO PUBLIC LIBRARY PROVIDED
6,118 HOURS OF DIGITAL LITERACY AND JOB
TRAINING CLASSES

SFCONNECTED PROVIDED TRAINING TO **1,962**
SENIORS AND ADULTS WITH DISABILITIES.

TECHSF HELPED TRAIN AND PLACE **235**
RESIDENTS WITH JOBS FOLLOWING CITY
ONLINE TRAININGS.

Goal 3: Increase Access & Transparency to Government

Open Data: Increase the availability and quality of data available on the Open Data Portal.

Key Performance Indicator:

- Increase the number of Department data inventories.
- Achieve 90% of datasets with required metadata.

Digital Literacy: Increase the number of seniors, youth, and disabled using the Internet.

Key Performance Indicator:

- Increase the percent of seniors who reportedly use Internet following digital literacy training
- Increase the number of participants in digital literacy programs offered at public libraries
- Increase the number of successful job placements following participation in a digital job training programs.

Broadband Internet Access: Increase the availability of fiber Internet throughout San Francisco.

Key Performance Indicator:

- Increase the percent of San Francisco residents with broadband Internet at home.
- Increase the number of City Recreation Centers, Health Clinics, and Public Libraries connected to City Fiber.

Over the next five years, the Committee on Information Technology will track all ICT performance measures on their website at <http://ictplan.sfgov.org/>

Upcoming City Projects - Increase Access and Transparency to Local Government

DAHLIA, the San Francisco Housing Portal

5-year Budget: \$1,915,000

Projected Completion Date: FY 2019-20

San Francisco Housing Portal is a pilot project to make it easy to search and apply for City-funded affordable housing in San Francisco. Since February 2016, over 100,000 users have searched the Housing Portal for inclusionary affordable housing opportunities at housing.sfgov.org while a new electronic lottery system has streamlined administrative processes.

Jobs Portal - Office of Economic and Workforce Development

5-year Budget: \$2,050,228

Projected Completion Date: FY 2019-20

The Jobs Portal is a new public-facing website designed to help the City manage jobseekers and workforce service providers find employment opportunities and programs, no matter how they initially seek out assistance or what their unique combination of needs may be. Annually, the City invests almost \$100 million in dozens of diverse programs to meet the various needs of low-income jobseekers. The Jobs Portal prioritizes jobseekers, personalizing training and assistance, while creating the City's first centralized, online approach to workforce development.

Digital Asset Management System Public Library

5-year Budget: \$250,000

Projected Completion Date: FY 2018-19

Currently, the Library uses of many disparate platforms to archive and provide public access to our digital assets. Implementing a Digital Asset Management System to manage and integrate our growing number of high value, rare, or unique digital objects into a single system that is accessible by the public. These digitization efforts are primarily for historical and archival projects.

Short Term Rentals Portal City Administrator's Office

5-year Budget: \$390,000

Projected Completion Date: FY 2018-19

In partnership with the Office of Short-Term Rentals, the Department of Technology has developed an online service to simplify required reporting for certified short-term rental hosts. Hosts get convenient email reminders about deadlines, while City staff now has a new straightforward, modern interface to manage certificate registry and manage compliance. The next phase will be to develop online registration, renewals, and payments for short-term rental hosts.

SharePoint Development District Attorney's Office

5-year Budget: \$130,000

Projected Completion Date: FY 2017-18

In support of one of the Mayor's major initiatives, the new Department of Homelessness and Supportive Housing was created with the singular focus on preventing and ending homelessness for people in San Francisco. The ONE System is instrumental towards achieving this goal and will be the primary system enabling the coordinated care of homeless households city-wide, and will enable a Coordinated Entry System to prioritize all homeless households.





UPCOMING INITIATIVES

The development of the ICT Plan is also an opportunity to re-examine the state of our City to see where we can better leverage technology. The following strategic initiatives will be areas of focus over the next five years.

City Employee Experience

Technology continues to transform the way we live and is fundamental to modernizing government in becoming more efficient and effective. Yet the way in which the City and County of San Francisco utilizes technology varies.

The City Employee Experience project is a citywide effort to improve the employee's experience using technology. Over the next five years, City leaders will convene to strategically examine key areas of City operations to better integrate and streamline business operations.

The City Employee Experience Strategy will re-evaluate the end-to-end experience and build processes that seamlessly integrate technology. An initial starting point will be to examine the onboarding process for new City employees. Bringing together staff from the Controller's Office, the Department of Human Resources, and the Department of Technology Staff, team members will work together to enhance how we introduce and train new employees. The experience using City technology begins on the first day of the job, and we need to be more deliberate in our processes if we are to make the most out of our technologies.

Improving our change management strategies and redesigning our processes will help the City more seamlessly integrate technology. In the next year, working groups will provide recommendations and develop new strategies to make our employees experience with technology more seamless.

Strategic Sourcing & Procurement

The procurement of technology has added an additional level of complexity for local government. Unlike stationary or other standard commodity goods, technology requires licensing and a sustained relationship with vendors to maintain goods and products. With technology rapidly evolving every day, local government must have the ability to be responsive to new service demands and purchase the tools it needs quickly.

At the same time, local government is also committed to supporting fair and open competition in all strategic sourcing. Over the years, the City has built an extensive set of rules to ensure all procurement is upholding our highest ideals. Although the City must seek opportunities to acquire goods and services quickly, we must also account for the social policies set in place.

Over the next five years, the City seeks to re-examine our strategic sourcing strategies in an effort to streamline the procurement of technological goods and services. To lead this effort, a collaborative working group will be formed with staff from the Office of Contract Administration, the Department of Technology, and the Controller's Office.

The Procurement Working Group will be tasked with analyzing the different components to technology procurement and strategies to overcome barriers. Much of their work will entail reviewing business processes and support, but also the legal framework that governs procurement. Over the next year, the Procurement Working Group will provide recommendations and help spread successful innovations in an effort to make technology procurement quicker and easier.

Data Architecture

The City has recently embarked on a variety of major technology projects that are changing the way we do business. Each of these systems are helping modernize our service delivery practices to better serve San Francisco.

However, to have modern, responsive, and effective services, the City must strive to build a culture of data analysis and iterative improvement. Key to achieving this objective is having the architecture that promotes sharing and data-driven decisions.

Over the next five years, DataSF will team up with the Committee on Information Technology (COIT) to develop a strategy for a shared data architecture and foster better collaboration among City departments. From the outset, the DataSF team invested resources in building the Open Data Portal as a mechanism to share data with the public. The next stage of this development is to promote sharing internally.

The manner in which technology systems are developed can either promote or obstruct data sharing. Among many of the projects that support the creation of a data architecture are:

- **Business intelligence**
- **Customer relationship management systems**
- **Coordinated care and case management**
- **Internet of things**

In the next year, the DataSF team and COIT seek to leverage planned investments to help build the base blocks for a more coordinated City government.



Technology Policies: Cybersecurity & Disaster Preparedness

In 2016, the Committee on Information Technology (COIT) passed two citywide policies to build the City's capacity to support a cybersecurity program and disaster preparedness, recovery, response, and resilience. The requirements identified in each policy apply to all information resources operated by the City and its component departments and commissions.

In the coming years, the City will engage in implementing each policy. Specifically, each policy states:

Cybersecurity Policy

In the next year, City departments are required to build their cybersecurity operations in an effort to better secure the City's systems and data. With guidance from the City's Chief Information Security Officer, departments will place a renewed emphasis on building cybersecurity capacity.

Each department will be required to:

1. Adopt a cybersecurity framework as a basis to build their cybersecurity program. The City recommends adopting the National Institute of Standards and Technology (NIST) Cybersecurity Framework as a methodology to secure information resources.
2. Provide management level support to conduct cybersecurity operations.
3. Appoint Cybersecurity Officers or security liaisons to coordinate cybersecurity efforts.
4. Participate in citywide cybersecurity roundtable meetings.

In the next year, the City aims to make significant progress in further securing City systems from cyber threat.

Disaster Preparedness, Recovery, Response, and Resilience (DPR3)

Under the DPR3 policy, City departments are required to develop a Continuity of Operations Plan (COOP) for their technology systems with clear, consistent and achievable standards to ensure the delivery of public services during and after a disaster.

Coordinating between the Department of Emergency Management, the City's Chief Resiliency Officer, the Controller's Office, and the Department of Technology, the City will help departments better prepare for disaster. To ensure public services can be efficiently and effectively provided, the emphasis of this policy is to promote the resilience of CCSF's critical IT infrastructure, minimize the effects of a disaster upon departmental operations, and restore critical IT services.

Over the next two years, departments are required to complete a draft IT COOP by July 2017, and a complete plan by July 2018.

A complete list of the City's policy portfolio is available here: <http://sfcoit.org/coit-policies>.

FISCAL STRATEGIES

A major component of the City's ICT Plan is to provide direction for the strategic investment of technology projects. The following section describes the structure of the City's technology allocations and a framework for future funding decisions.

Budget Overview

Technology touches every part of the City's operations. From our websites, to our databases, all the way to our email and telephone systems, technology helps local government run.

The widespread influence of technology is reflected in the increasing amount of funds allocated towards information technology (IT). Shown in Figure 2, San Francisco has budgeted more for technology every year in the past five years. What's more, IT amounts for an increasing proportion of the City's entire budget despite increases to the overall budget year.

The growing investments in technology largely reflects two areas:

1 – Core IT Projects

In an effort to replace critical technology infrastructure, the City has engaged in several large, multi-year enterprise projects. The City tracks enterprise projects different, depending on the stage of their development process. Projects that are still in the implementation phase and are still being designed and built are described as Major IT Projects. Currently, these projects are:

Implementation Phase or Active Major IT Projects

- Controller's Office: Financial Systems Replacement (F\$P)
- Department of Emergency Management: Public Safety & Public Radio Replacement Project
- Assessor-Recorder's Office: Replacement of the Property Assessment System
- Department of Public Health: Electronic Health Records Project (EHR)

However, the City also has several systems that are completed and are actively supporting City operations. These systems that are in the "production phase" include:

Production Phase

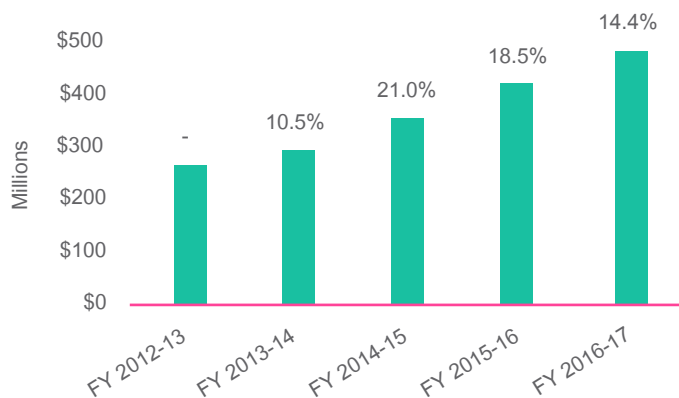
- Controller's Office: Human Capital Management System (eMerge)
- City Administrator's Office: Justice Tracking Information System (JUSTIS)
- Department of Technology: Upgrades to the City's Fiber Network

The full portfolio of the City's enterprise systems is more properly described as Core IT. Figure 3 shows how much Core IT Projects contributed to the growth of the City's IT budget over the last five years. As is clearly visible, the City's ability to fund Core IT Projects was greatly enhanced in FY 2014-15 when the Mayor dedicated a new source of funding to support their implementation.

2 – Increased IT Staff

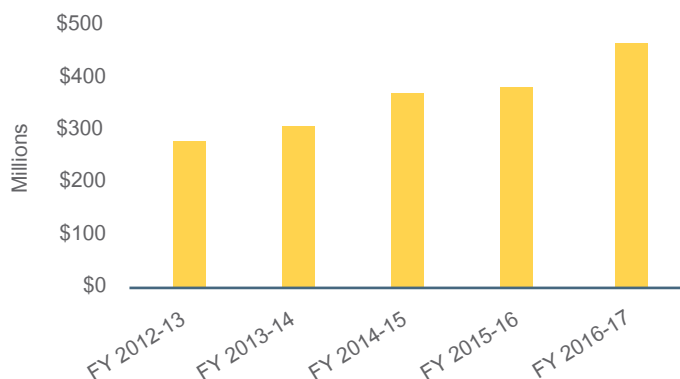
The City also has an increasing need for technology professionals. As more and more City services require technical support, the need for skilled professionals grows. The implementation of the Major IT Projects is another factor contributing to an influx of IT project staff over the last five years. Figure 4 shows the City's overall need for more IT professionals is growing at a steady rate every year.

Figure 2: Growth of IT Spending by Year (Percent Growth)



Year	IT Budget	Total Budget	% IT
FY 2012-13	\$265.6M	\$7.4B	3.6%
FY 2013-14	\$293.5M	\$7.9B	3.7%
FY 2014-15	\$355.1M	\$8.6B	4.1%
FY 2015-16	\$420.9M	\$8.9B	4.7%
FY 2016-17	\$481.5M	\$9.6B	5.0%

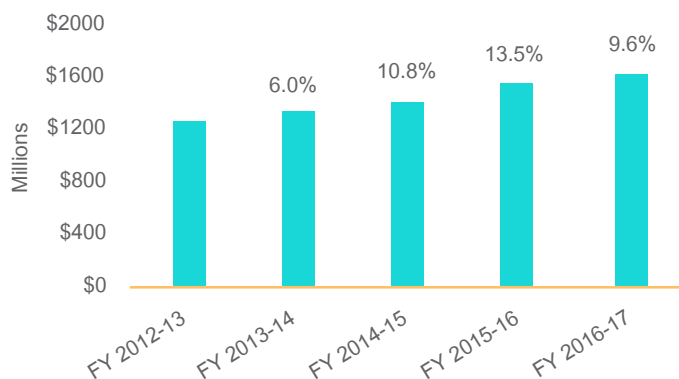
Figure 3: Growth of Core IT Projects



Year	Core Tech Budget	All Other Tech	% of Total
FY 2012-13	\$5.2M	\$250.3M	2.1%
FY 2013-14	\$8.0M	\$278.9M	2.9%
FY 2014-15	\$9.0M	\$333.1M	2.7%
FY 2015-16	\$50.7M	\$345.6M	14.7%
FY 2016-17	\$58.9M	\$416.9M	14.1%

UPCOMING INITIATIVES

Figure 4: Growth of IT Jobs (Percent Growth)



Year	IT Jobs (FTE)	Total Salary	% Growth
FY 2012-13	1,190	\$129.9M	-
FY 2013-14	1,249	\$137.8M	6.0%
FY 2014-15	1,324	\$152.6M	10.8%
FY 2015-16	1,453	\$173.1M	13.5%
FY 2016-17	1,536	\$189.8M	9.6%

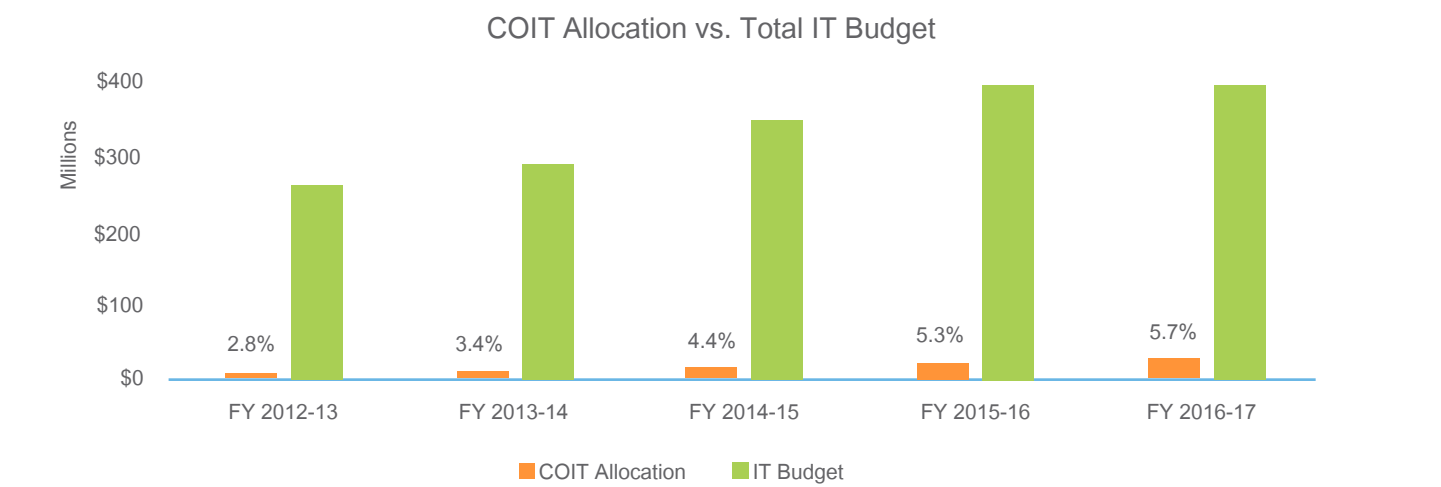
Funding Structure

San Francisco’s technology budget is separated between funding required to support and maintain existing technologies and investment in new technology projects. The City and County of San Francisco has 54 departments, each with specific services and technology needs. The vast majority of the City’s technology budget is dedicated towards the ongoing support of operations and services.

In contrast, the City has developed a centralized method to review new technology projects. For all new technology projects, departments submit project requests to the Committee on Information Technology (COIT) for review and approval. The structure of this budget process is to promote coordination and collaboration between departments, and hopefully to find shared efficiencies.

Historically, COIT’s General Fund allocation has only represented a small portion of the City’s total technology budget. Shown in Figure 5 below, COIT’s allocation is overshadowed by department operating budgets for technology. For instance, in FY 2016-17, COIT’s allocation contributed only \$27.5 million to the entire IT budget of approximately \$475.8 million, a proportion of 5.7 percent.

Figure 5: Contribution of COIT Allocations to the Total City Technology Budget



Although COIT’s allocation is dwarfed by the City’s overall budget, the central coordination of all future technology investments has proven to be an effective tool. As COIT’s allocation continues to grow, so does the City’s ability to invest in projects that significantly impact our services.



COIT's annual budget process examines all technology projects for review and approval. At the end of the review process, COIT provides funding recommendations to the Mayor and the Board of Supervisors. For projects requesting financial support, COIT provides funding recommendations through the following sources:

- COIT's Annual Projects Allocation is a portion of the General Fund dedicated towards the investment of multiple technology projects throughout the City. Structured as a pay-as-you-go fund, General Fund Departments may request funding to supplement their annual operating budgets.
- COIT's Major IT Projects Allocation is a new General Fund allocation created in FY 2014-15 by the Mayor and the Board of Supervisors to support technology projects that impact multiple departments. The addition of the Major IT Project allocation has significantly increased COIT's ability to modernize the City's technology portfolio.
- The Department of Technology's Rate Model supports the implementation of a number of Citywide ICT projects through the use of chargeback rates. In FY 2015-16 these chargeback rates were allocated 25 percent to Enterprise departments and 75 percent to General Fund departments. Recently funded projects include the expansion of fiber throughout San Francisco, implementation of a citywide active directory, and development of enterprise license agreements.
- Non-General Fund Sources are a critical source of support for technology projects throughout the City. Technology projects from the City's Enterprise Departments (San Francisco International Airport, Municipal Transportation Administration, the Port, and Public Utilities Commission) are wholly support by non-general fund sources. In addition, grants from Federal, State, and private sources are critical sources of funding for departments throughout the City.

The addition of the Major IT Projects Allocation has greatly expanded COIT's capacity to support City technology projects compared with previous years. In the FY 2014-18 ICT Plan, COIT's Annual Projects Allocation was only \$49.1 million. In contrast, COIT's entire allocation in the FY 2018-22 ICT Plan which includes the Major IT Projects Allocation is projected to be \$184.7 million, an increase of approximately 350 percent in funding for General Fund supported projects.

The Major IT Projects Allocation is now an effective vehicle to help secure funding for the duration of a project's implementation. Overall, the addition of the Major IT Projects Allocation is a positive step to address the City's ICT needs.

Figure 6: Projected COIT Allocation from FY 2017-18 through FY 2021-22

	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	TOTAL
Annual Project	11.7	12.8	14.1	15.5	17.1	71.2
Major IT Projects	18.6	20.5	22.5	24.7	27.2	113.5
TOTAL	30.3	33.3	36.6	40.3	44.3	184.7

Note: All figures in \$ millions.

Technology Project Forecast

Every budget cycle, COIT reviews all technology project proposals with an estimated cost of \$100,000 or greater for review and approval. In the current five year cycle, departments have submitted 152 projects for a total of projected cost of \$386.2 million.

Figure 7: Forecast of Projects and General Fund Requests from FY 2017-18 through FY 2021-22

	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	TOTAL
Total Projected Cost	142.4	122.4	47.8	40.7	32.7	386.2
General Fund Request	55.3	50.9	34.4	32.6	24.8	198.1

Note: All figures in \$ millions.

Looking forward to the next five years, COIT's allocations are insufficient to meet the growing demand for new technology projects in the next two years.

General Fund requests on the Major IT Allocation are balanced between identified immediate needs and future potential projects. The Financial Systems Replacement project is on schedule to be complete in FY 2017-18 and has already been fully funded, removing any additional requests on COIT's allocation. However, General Fund requests from the Public Safety & Public Service Radio Replacement and the Replacement of the Property Assessment & Tax System far outstrip available resources in the next two fiscal years. Only in FY 2019-20 can funding be redirected towards emerging needs.

Figure 8 below shows the General Fund requests for Major IT Projects and future set asides for future projects.

Figure 8: Major IT Project Funding Recommendations

Project	Total General Fund Requests
Financial Systems Replacement (F\$P)	-
Citywide Radio Replacement Project	31.7
Property Assessment & Tax System Replacement	52.9
Emerging Needs	28.7
Total	113.5

Note: All figures in \$ millions.

Similarly, requests on the Annual Project Allocation are projected vary across the years. However, as shown in Figure 9 below, department requests for support from the Annual Project Allocation far outstrip available resources.

Figure 9: Annual Project Allocation against Projected Requests from FY 2017-18 through FY 2021-22

	FY 17-18	FY 18-19	FY 19-20	FY 20-21	FY 21-22	TOTAL
Total Projected Cost	11.7	12.8	14.1	15.5	17.1	71.2
General Fund Request	36.5	32.1	23.5	22.4	19.4	134
Difference	24.8	19.3	9.4	6.9	2.3	62.8

Note: All figures in \$ millions.

With finite resources, COIT must invest in projects that support City goals and have the greatest impact. Through the budget review process, COIT utilizes fiscal strategies specific to funding source. The following section describes funding strategies employed in support of the Mayor's vision for the City and the goals identified in the ICT Plan.

Major IT Allocation

COIT evaluates each Major IT Project on the basis of each project's impact, the current and future risk of deferring funding, as well as the department's readiness to implement. Under current budget projections, COIT will recommend the distribution of \$113.5 million of Major IT Project allocation to assist with the replacement of the City's critical legacy ICT systems.

The addition of the Major IT Projects Allocation in FY 2014-15 has significantly increased COIT's ability to make funding recommendations. However in the next two fiscal years, the three identified Major IT Projects require funding beyond resources available, forcing COIT to prioritize project funding levels.

In the creation of a funding schedule, COIT uses the following strategies:

- **Better Project Planning of Major IT Projects:** Major IT Projects should be sufficiently scoped and planned before they are approved for implementation and funding. Since FY 2014-15, COIT has provided funding recommendations to support projects in the Critical Development phase.
- **Alternative Funding Sources:** For large-scale ICT projects, COIT encourages departments to identify alternative funding sources and share costs between Enterprise Departments and the General Fund when possible.
- **Breakdown Large Projects to Access Diverse Funding Sources:** In some cases, departments may be able to create smaller expenditure categories in order to provide funding through multiple sources.
- **One-Time Funding Sources and Budget Reallocation:** When possible, the City should identify one-time funding sources and explore the reallocation of existing ICT dollars to be used to fund Major IT Projects.
- **Project Sequencing:** COIT funding recommendations for Major IT Projects should be sequenced so that as project implementations are ending new project funding is phased in.
- **Deferral:** COIT may defer funding recommendations until comprehensive planning is complete or when sufficient resources become available.

The City's investment towards large, enterprise technologies also accompanies an expectations of future efficiencies. Rather than multiple systems conducting the same task, enterprise systems centralize the management and maintenance of a core set of technologies. The efficiencies gained from enterprise systems should be a major factor in the analysis and implementation of all Major IT Projects.

Based on the funding strategy described above, COIT recommends the following Major IT Projects for funding:

1) Financial Systems Replacement Project (F\$P)

The City is currently replacing their mainframe-based central financial and accounting information system (FAMIS). The City's new Financial System is expected to go live in FY 2017-18 and will be the system of record for accounting, budget control, purchasing, and financial reporting for all City departments.

Funding Recommendation:

F\$P has already been fully funded with costs split between the General Fund and Enterprise Departments, with the Major IT Projects Allocation providing support from years FY 2015-16 through FY 2017-18.

2) Public Safety & Public Service Radio Replacement:

The Public Safety & Public Service Radio Replacement Project will upgrade the Citywide 800 MHz Radio Communications System used primarily by the City's public safety agencies. The current system was installed in 2000 and is nearing the end of its service life. The new technology will support over 7,000 mobile and handheld radios, with 10 City departments and four outside agencies operating daily on the system. In addition, the Public Service Radio Replacement Project is being considered as part of the Public Safety Radio Replacement Project.

Funding Recommendation:

This project will be funded through a number of sources including Capital Planning, the City's equipment budget, COIT's Annual Projects Allocation, user department support, and Motorola Financing.

3) Property Tax System:

The Assessor-Recorder has used a COBOL-based AS/400 system since 2000 to track \$170.0 billion in assessed value. The current system has an outdated, non-relational database platform, which lacks the capability to access maps, deeds and work papers to streamline the assessment process. The Assessor seeks an updated property tax database system capable of handling all assessment functions in a fully integrated manner, including: document capture, reporting, storage maintenance, conversion migration services and management.

Funding Recommendation:

This project should be considered as the next highest priority for Major IT Project funding. Should additional resources become available, COIT recommends fully funding this project.

Electronic Health Records (EHR):

The Department of Public Health's (DPH) current EHR vendor is end-of-life and will likely no longer be supported by the vendor within three to five years. DPH must transition to a new EHR system that unifies all hospitals and clinics under a single system. A unified EMR system will allow DPH to transition to performance based medicine and better track patients and service delivery outcomes.

Funding Recommendation:

The Department of Public Health anticipates funding this project within their operating budget and through outside sources. Should there be any additional General Fund costs, the Electronic Medical Records project should be considered a Major IT Project and provided a defined funding schedule.

Future Major IT Projects

In addition, the City has begun investigating what may become the next major technology project. Before beginning any new technology venture, the City recommends extensive planning and scoping to better understand the true cost of any new technology. The City has begun evaluating various different projects that may be considered as major investments, which include:

- **Voice over Internet Protocol (VoIP):** The City currently relies on legacy phone systems to support operations. A transition to a VoIP solution offers multiple benefits in terms of cost-effectiveness and resiliency. Over the next two years, the Department of Technology will investigate the widespread adoption of VoIP to replace the City's telephone systems.
- **Citywide Customer Relationship Management:** Departments across the City offer direct services to residents in different capacities. To support the vision of providing a single service experience, City departments must be able to share service information with other departments. The City is investigating the pursuit of a single system to better coordinate customer information in an effort to create a seamless service experience across departments.
- **Voting System Replacement:** The City's current voting system license is set to expire in 2018. Without a long-term contract in place, the City has an opportunity to pursue alternative voting systems that could promote transparency and more security. The City is currently investigating alternative options, including the possibility of building an open-source system.
- **Universal Broadband:** Access to broadband Internet has become a universal need in the modern economy. To ensure all of our residents and businesses are able to participate in today's society, the City is currently investigating various approaches to connect every household and business in San Francisco.

With multiple projects on the horizon, the City is forced to sequence projects to support the cost-effective outcomes. COIT recognizes the inherent risks of extending a project's timeline, which can include an increase to project costs and increased risk COIT allocations levels may change. However to accomplish our goals, project funding must necessarily be spread over the five-year period of this Plan.

In turn, COIT recommends each project employ several strategies to achieve full funding. COIT's recommended funding schedule will be determined annually during the budget review process.

Annual Project Allocation

Through the Annual Project Allocation, COIT makes funding recommendations towards other ICT projects that range from citywide projects to department specific. The Annual Project Allocation is structured as a pay-as-you-go fund and intended to support new technology projects.

To support this intended purpose, COIT sorts each project into one of four functional categories: New, Replacement, Enhancement, and Maintenance. Sorting each project request into a category promotes COIT's mission to support only new technology projects with significant impact. In the future, COIT recommends the continued investment in projects that provide substantial enhancements and cost-savings to City operations.

In the FY 2018-22 timeframe, departments requested a total of \$134.0 million in General Fund support. Overall, COIT will make recommendations on the approval and funding of over \$71.2 million in General Fund dollars. However because funding requests far outstrip the available allocation, COIT projects a funding gap of \$62.8 million over the next five years. Due to these finite resources, COIT evaluates all ICT Projects to determine the need, anticipated impact, and the department's readiness to implement. Much like Major IT Projects, COIT has developed a funding strategy for projects to be funded by the Annual Projects Allocation.

Using the ICT goals described above, COIT uses the following strategies to prioritize funding:

- **Better Coordination / Consolidation of Departmental Needs:** A majority of General Fund requests are scoped to impact only the requesting department. Several of these individual requests have been identified as having overlapping needs. COIT will continue to work with departments to support project requests that support multi-departmental and citywide initiatives and have a greater overall impact.
- **Performance Management:** For all ongoing projects, COIT evaluates current project performance as part of the determination for future funding. In some cases, COIT may re-allocate funding towards projects that are better managed or are being implemented more successfully.
- **One-Time Funding Sources and Budget Reallocation:** The City should identify one-time funding sources and explore the reallocation of existing IT dollars to fund priority projects.
- **Project Deferrals:** COIT may defer funding recommendations until comprehensive planning is complete or when sufficient resources become available.

The strategies outlined above coupled with the annual budget process will enable COIT to identify the highest priority investments.

RECOMMENDATIONS

San Francisco City services should be easy to use and accessible to every resident, visitor, and business. Every investment and every technology in the City should be working towards this singular vision.

Over the next five years, the City will continue to act as a global leader in the delivery of government services. Working together to tackle our greatest problems, technology will play a pivotal role in helping to make our City a better place to live.

To address current and future needs, COIT recommends the following:

- **Recommendation 1:** Continue to grow the Major IT Project Allocation and the Annual Project Allocations by 10 percent annually.
- **Recommendation 2:** COIT should prioritize General Fund support for technology projects that align with ICT Plan goals.
- **Recommendation 3:** A comprehensive planning and scoping phase should precede investment for future Major IT Projects to better understand total lifecycle costs and returns.
- **Recommendation 4:** COIT should sequence funding of Major IT Projects on the basis of risk, project readiness, and cost-effectiveness.
- **Recommendation 5:** COIT's allocations should support technology projects that replace or enhance existing services and promote eventual cost savings.
- **Recommendation 6:** The City should set aside a separate funding source for the continual refreshment of IT hardware.