



IT Strategic Plan

HOUSTON INFORMATION
TECHNOLOGY SERVICES

2015 – 2017



*Investing for Tomorrow's
Technology, Today*

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Executive Summary



Information technology (IT) in government is ubiquitous by nature. Constrained by fiscal challenges, technology spending requires careful planning and stringent stewardship to ensure that critical citizen services supported by technology continue to be delivered on time and within budgets.

The Information Technology Strategic Plan optimizes overall IT expenditures across the City of Houston. The Plan includes six main goals:

1. Engage to enable IT to become a partner of choice
2. Create a resilient, scalable, and agile infrastructure
3. Transform the future IT workforce
4. Improve the overall management and delivery of IT services
5. Protect City information
6. Enhance citizen engagement

Texas is America's second fastest-growing state, and Houston is the fifth city with the largest population gain in the country, according to the *United States Census Bureau*¹. The current economic situation offers unique opportunities. IT expenditures must be viewed horizontally across the enterprise. Opportunities to reach out and break down agency silos for greater economies of scale are prevalent. Opportunities to share agency data for new cross-agency collaborations exist.

Opportunities to be good stewards of the Earth by decreasing utility needs, limiting our carbon footprint, and reusing or recycling end-of-life electronics abound. IT is constantly seeking opportunities to decrease costs while improving services for all customers. We are continuously searching for ways to improve internally to better serve each City department, and ultimately, the citizens of Houston.



¹ Census – Fastest growing population and city in America: <http://www.census.gov/newsroom/press-releases/2015/cb15-89.html>

Our Vision

To be a collaborative organization that enables our employees, partners, and citizens to get the utmost value from our technology investments not and in the future.

Our Mission

To provide innovative service delivery supporting our customer's customers.



Our Guiding Principles

To fulfill our mission and vision statements, achieve the objectives set out in this Plan, and deliver the best possible returns for the City of Houston, we will follow best practices, achieve consistency of approach, and make effective use of the resources available to us. We will achieve this through an adaptation of methodologies from the following bodies of excellence: The Open Group Architecture Framework (TOGAF®), Project Management Institute (PMI®), and the IT Infrastructure Library (ITIL®), as well as our compliance with the following guiding principles, also known as Business Case Questions, approved by the City of Houston's IT Governance Board:

- Think citywide
- Enable excellent customer service as part of our culture
- Ensure information confidentiality, integrity, and availability
- Promote a consistent IT architecture
- Reuse before buy, buy before build (applications, data, and processes)
- Manage IT as an investment for innovation

Critical Success Factors

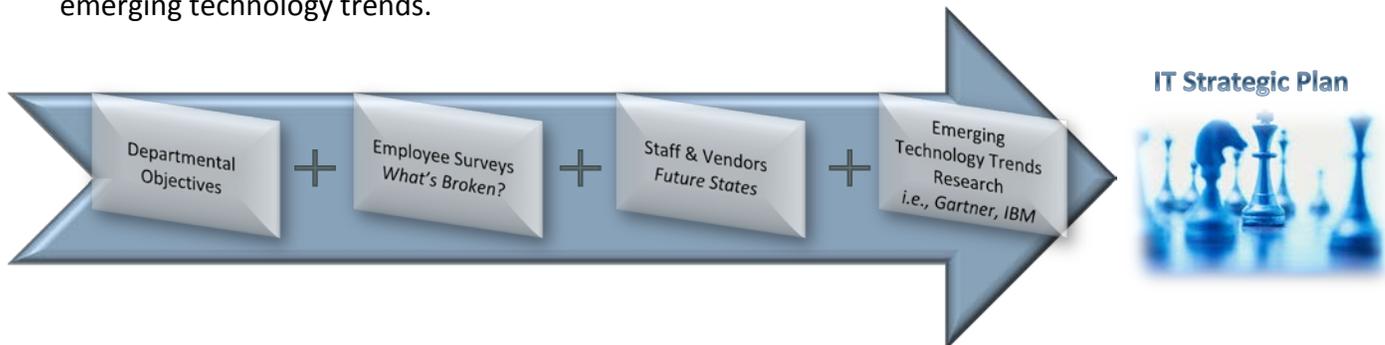
We believe the following factors are critical to IT service delivery and achievement of strategic goals. These factors can impact the successful execution of the IT Strategic Plan:

- Willingness of IT staff to embrace change
- Willingness of all City departments to collaborate for the benefit of the whole
- Sufficient resources to support initiatives with skilled personnel, funding, training, and time
- Active and visible senior management support
- Well-defined and disciplined processes for information capture, data quality, and accuracy of City information and records



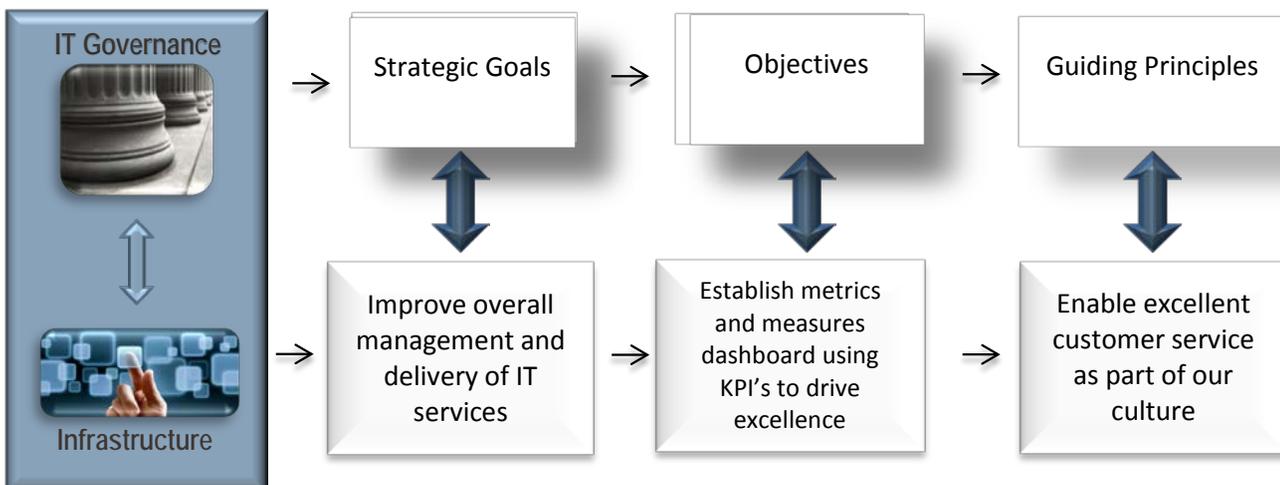
The Planning Process

This Plan was a collaborative effort involving employees, IT management teams, business partners, and external consultants. Feedback was collected through focus groups, surveys, interviews and research on emerging technology trends.



Visualization

The following illustration demonstrates how strategic goals, objectives, and principles are aligned to a singular objective. The IT governance framework is used to manage the alignment and tracking of the results. The intent of this illustration is to provide a simple view of the Plan and its relationships.



Measurement

We will define and publish metrics for each of the strategic goals and initiatives wherever possible using a variety of methods:

1. Key performance indicators (KPIs) tied to business initiatives
2. Proprietary scoring and rating methodologies
3. Internal and external benchmarks

The Strategic Plan 2015 - 2017

Goal #1 – Engage to Enable IT to Become a Partner of Choice

Obj. 1 - Collect business goals, integrate strategy

Obj. 2 - Provide enterprise applications that empower the business

Obj. 3 - Research new and emerging capabilities for insertion into the business

Obj. 4 - Manage data as an asset for information-based decision-making



Technology and Business Alignment

Alignment is defined as the appropriate and timely application of IT in harmony with business objectives, strategies, and requirements¹. We will relentlessly strive to leverage technology solutions to meet business objectives. A successful technology integration strategy incorporates IT systems that enable new services, reduce or avoid costs and risks, and increase business productivity. As technology evolves, new capabilities to automate, streamline, and accelerate business processes may be inserted into the organization via improved communication mechanisms, mobile devices, and enhanced accessibility of critical information.

Enterprise Applications and Data

Data is a key asset for the City of Houston and its citizens. We will strive to create a data-driven city by turning data into valuable information. By doing this we will provide our leadership and the citizens they serve with the tools to make relevant decisions. Enterprise data management will enable the use of key technologies such as business intelligence, location analytics, data warehouses, and big data.

The Enterprise Applications division is responsible for the on-going support of numerous applications and tools that enable citywide and departmental business functions; aligning the underlying business processes, technologies, and terminologies of commercial off-the-shelf and custom applications we support.

To establish a consistent and reliable environment, uniform standards and best practices have been adopted as a cultural norm by our development team. As such, we have created Standards for Enterprise Application Management (STEAM), which is modeled after Application Lifecycle Management (ALM) and Information Technology Infrastructure Library (ITIL) industry practices.

CSMART (Court System Management and Resource Tool), our custom developed solution, went live April 2015, meeting the current and ongoing needs of a large municipality. In Phase II of the project, we will continue to enhance our product to increase functionalities to ease the municipal courts and Houston Police Department judicial processes for our citizens.

Applications that interface with mobile devices continue to grow in popularity, both in the public and with City employees. By optimizing our existing applications, we will move towards mobile-friendly technologies that enhance accessibility to our environment and create a more flexible way to conduct business.

¹ Sarhandi et al., 2011

Goal #2 – Create a Resilient, Scalable, and Agile IT Infrastructure

Obj. 1 - Ensure a base level infrastructure is in place to accommodate growth

Obj. 2 - Seed infrastructure in anticipation of future upgrades and initiatives

Obj. 3 - Seek opportunities to adopt and implement cost-effective shared service approaches

Obj. 4 - Leverage transformational technologies (e.g. cloud computing for improved operational efficiencies)

The need for the City's network to dynamically grow and evolve on demand is paramount. Lowering costs and providing reliable connectivity to over 450 City locations via a wide area network is essential. The business requirements of today and tomorrow demand a high-performance infrastructure that can support faster access to data and applications with low power use.

In addition to ensuring a base level infrastructure that can grow to the needs of our customers, we put in place additional capacity, a seed infrastructure; extending the City's IT services to include cloud-based solutions.



More than ever the City is better prepared to mitigate outages due to weather-related events or other emergency situations, with the establishment of two highly-available data centers. Having consolidated data center space enables us to provide better, more reliable service to departments within the City. The consolidation of data centers establishes open standards as a requirement to simplify multi-agency connectivity, third-party integration, and security compliance with industry standards.

In leveraging technologies, our roadmap consists of a power consumption initiative for the City to optimize power loads for infrastructure. Additionally, we will expand the use of virtualization platforms to shift our investments to more efficient computing platforms, improve system delivery, and streamline costs. With the continual adoption of cloud computing, developing criteria to address what resides in the cloud, financial monitoring of subscriptions, technical standards, security, and configurations will be crucial in the continuous integration and delivery of future cloud-based solutions.



Beyond the cloud are opportunities to move to a hybrid model that completely changes the way we run IT. Our strategy is to leverage application hosting when there is a desire to satisfy a business need rather than standing up infrastructure wherever possible within financial, legal, and security constraints.

Goal #3 – Transform our Future IT Workforce

Obj. 1 - Attract and retain new people

Obj. 2 - Review and align citywide IT classifications

Obj. 3 - Target employee productivity through innovative technology

Obj. 4 - Revitalize the structure of IT to reflect our demands

Obj. 5 - Invest in training and career development of IT professionals to keep skills current



Information technology workers remain one of the top 10 most difficult positions to fill in America². Most of the growth in Houston is aligned with the energy and health industries. This presents a challenge with staffing to other less financially fluent industries like government. It requires new thinking and approaches to not only attract new resources but to also retain the staff we have.

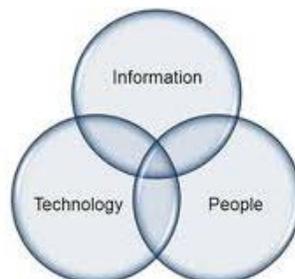


We will conduct research into best practices and methods to target the acquisition and retention of skilled workers, including an increase in collaboration with higher education. We have committed investments for training and curriculum development to ensure that our teams have the right skills to continue to meet our demands. Working with Human Resources, we will leverage our recently upgraded Talent Management System to deliver training to our IT employees and to educate our clients on technology.

Citywide titles and designations have been unchanged for 15 years and now far outdate the technologies that are in use today. For example, the role and skill sets of desktop support analysts today are quite different from their counterparts of fifteen, or even five years ago. They may be called upon less to support devices and local applications, but more to support cloud or mobile solutions, engage in vendor relationships, and support business process.

Several *roles* that did not exist over a decade ago are well established *careers* today. The City is embarking on a job title reclassification project that is expected to yield tremendous benefits in aligning the right people with the right skills.

Research³ shows that employees operate optimally when given a clear understanding of their roles and responsibilities. Aside from reducing the amount of confusion, it helps the technology groups develop a more accurate taxonomy of IT jobs that will attract tech job seekers, both internally and externally. This will also assist the Human Resources Department with more accurate competitive industry benchmarking for salary and benefits.



² Forbes – 10 hardest jobs to fill in America: <http://www.forbes.com/pictures/ffge45gfjg/no-4-information-technology-workers/>

³ <http://www.shrm.org/Research/SurveyFindings/Articles/Documents/SHRM-Employee-Job-Satisfaction-Engagement.pdf>

Goal #4 – Improve the Overall Management of IT Services

Obj. 1 - Improve IT inventory, asset, and vendor management controls

Obj. 2 - Improve and simplify the cost allocation process

Obj. 3 - Optimize City of Houston portfolio of IT resources through effective governance

Obj. 4 - Enable excellent customer service as part of our culture

Leveraging technology and having a greater fiscal responsibility continues to be a strategic focus for us over the next three years. Working with the Finance department to improve IT asset management, we have taken the first steps to create and maintain an accurate, up to date assessment of all City-owned hardware and software assets including user assignments, asset location, procurement lifecycle, cost, value and contractual status.

The first of these asset models was built in the past fiscal year and has already provided value towards targeted refresh where most demand was needed. We will continue to deliver subsequent models to provide the holistic view.

This comprehensive view of inventory will drive an improvement in the quality of technology services, simplify our cost allocation model, and allow better decision-making in the overall management of IT and assignment of resources and money.



Strategic Alignment and IT Governance

There are two types of strategic alignment initiatives tied to the Governance Plan. The first set derives from the IT Strategic Plan for 2015 - 2017. All of the objectives are driven by delivering the best possible technology services back to the departments and are a joint effort between IT, Finance, and executive leadership across all City departments.

The second type of alignment reflects a strategic initiative for citywide integration as identified by Executive Order 1-44, Information Technology Governance, the citywide policy established in December 2012, by Mayor Annise Parker. All new IT projects for non-Federated departments are now taken through citywide IT Governance processes, which continue to go through organic enhancement.



Goal #5 – Protect City Information and Data

Obj. 1 - Implement citywide Information Security Program

Obj. 2 - Ensure information systems that host customers' applications and data are secure

Obj. 3 - Provide security systems and services



The City must adhere to federal and state privacy and data security regulations, such as the Health Insurance Portability and Accountability Act (HIPAA) and Payment Card Industry (PCI). Executive Order 1-48, policy on IT Security, mandates that the City develop and maintain a citywide information security program. This is being accomplished by utilizing the National Institute of Standards and Technology (NIST) Cyber Security Framework as a guide in establishing and implementing information security policies, procedures and handbooks to facilitate appropriate protection and accountability of information.

The Chief Information Security Officer (CISO) has developed an *Enterprise IT Security Roadmap* that, when fully implemented, will provide the needed protection of the City's business and privacy information. A number of key security initiatives were started in Fiscal Year 2015 and are planned for completion in Fiscal Year 2016. This roadmap includes an automated threat removal platform that will be implemented citywide and will significantly reduce the inherent security risk (from the use of IT resources) to City businesses.

The threat removal platform provides capabilities that will enable the automated implementation of critical security controls that are essential to securing information systems that host customer applications and data.

Key security initiatives that have commenced in Fiscal Year 2015 and will continue through Fiscal Year 2016 include:

1. Malware Defenses
2. Automate Threat Removal
3. Continuous Vulnerability Assessment and Remediation
4. Security Risk Intelligence
5. Data Loss Prevention
6. Mobile Device Management (MDM)
7. Cyber Security Awareness Training
8. Cyber Security and Disaster Recovery Planning



Goal #6 – Enhance Citizen Engagement

Obj. 1 - Enhance citizen engagement

Obj. 2 - Enhance City public safety communications systems and services

Engaging Citizens through Government Transparency

The City of Houston is committed to more actively engaging citizens in the delivery of services and providing adequate visibility into our business initiatives. To strengthen its citizen-centered approach to government, IT has begun to develop a strategy for citizen engagement. One component of this strategy is intended to increase public transparency about IT projects, particularly those highly impacting our citizens.



Publishing this information as Open Data through Internet and/or social media will bring citizens closer to their government. However, Open Data is more than just government transparency; it puts citizens in an active role of improving local government.

A newly established citywide Open Data advisory board identified and prioritized over 200 data sets. An Open Data infrastructure will be created to connect these data sets from disparate systems and provide meaningful insight and statistics. This information will empower citizens, non-profits, private business, students and entrepreneurs to find innovative ways to use our data to benefit the community, fuel efficiencies and increase economic growth in Houston.

Public Safety Communications

Another priority of citizen engagement is to expand and improve interoperable broadband and wireless networks to advance public safety communications; which will enable first responders to communicate efficiently and, consequently, save lives. An upgrade to NICE® systems, our audio recording solution that records incoming calls and radio transmissions, will increase accountability and maintain integrity of service delivered by all first responders.

As we focus on citizen safety solutions, the Valcom® initiative, a state-of-the-art intercom system, will deliver mission-critical paging between fire stations and upgraded voice-over IP (VoIP) phone systems to reduce response times.

The Emergency Telehealth and Navigation (ETHAN) initiative enhances our public safety mission and elevates the level of healthcare using video-conferencing technology to bring doctors straight to the scene. ETHAN improves patient triage decisions of first responders on calls involving non-emergent patients, reduces the number of transports to area emergency centers, and enables mobility challenged citizens to receive alternate transportation to access healthcare services. The program also provides automatic social service follow-up without overburdening emergency care professionals.

The City understands the need for continued 311 services in the event the main call center is deemed inaccessible or during a natural disaster. 311's Business Continuity Plan will nurture collaborative working relationships and provide agent mobility and augmentation to support demanding call volumes during such emergency events.

Strategic Plan Definitions

The following planning components terms, and acronyms are defined as follows:

COMPONENT/ACRONYM	DEFINITION
Vision	What and where we want to be.
Mission	Our defined purpose; what we do.
Guiding Principles / Business Case Questions	Criteria by which we acquire, design, manage and support technology.
Strategic Goals	What we plan to achieve within a defined timeframe.
Objectives	Specific and measurable milestones to achieve the goals.
Initiatives	Projects or actions that support the objectives.
ITOC	Citywide Information Technology Operating Committee - Established to provide operational governance of IT services.
ITGB	Citywide Information Technology Governance Board - Appointed to provide overall governance and oversight of large scale IT services and spending.
PMO	Project Management Office - Established to provide leadership to improve and expand project management processes, provide IT governance and/or coordination across City of Houston departments, and facilitate the proper use of the processes, practices, tools, and other activities related to project management.
TWG	Technical Working Group - Responsible for various IT functions, including the following: <ul style="list-style-type: none"> • Reviewing current IT standards, policies, and measurements, both departmental and enterprise • Submitting recommendations for departmental and enterprise objectives, to the IT Operating Committee, unless otherwise stated • Evaluating new projects against IT Principles and Standards (i.e., Business Case Questions)

Fast Facts

Houston IT Services (HITS), the central information technology and telecommunications department for the City of Houston, partners with IT divisions citywide to strive as leaders in all areas of technology in the public sector. The list below chronicles some of the examples of our commitment to excellence during fiscal years 2014 - 2015 in using technology to make Government run more smoothly to support our internal customers and citizens:

TECHNICAL SUPPORT

Client Service [help] desk, the single point of contact for technical support and/or services for all IT users, receives and processes approximately 60,000 support requests annually



Technical support for thousands of users including voice over IP (VoIP), cellular devices, critical site outages, network infrastructure build for new or existing site locations, and facilitation of new wireless service devices and warranty

Network consisting of 358 locations, supporting connectivity to the City's main data centers, Internet, and external agencies

Development and management of over 100 essential applications within the City

Support to physical and virtual servers across multiple data centers providing IT services to citizens and over 20,000 employees



Inventory management and support of over 20,000 desktops and laptops

Fast Facts

CALL CENTER & DISPATCH



Dispatch to an average of 1,697,789 events per year

Phone system support to 20 contact centers, including 311, 911, HR Benefits, Payroll, Municipal Courts, HPD, and various other departments

Total call volume handled by Houston Emergency Center: Over 3,004,600 calls

RADIO AND EMERGENCY SERVICES



52 radio tower sites

Over 13,000 subscriber radios dedicated to emergency services

94 HFD stations equipped with fire station alerting

Police and Fire events received averaging approximately 1,977,186 per year

21 inner-local agreements providing radio service to external agencies, including Pasadena and Bellaire, Texas

MAIL SERVICES

Corporate mail systems handle millions of messages monthly, equated to more than two terabytes of data



Email filtering systems detected and blocked over 93% of email from hundreds of millions of messages identified as spam, junk, and phishing attempts from reaching employee mailboxes

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