CITY AND COUNTY OF SAN FRANCISCO
BOARD of SUPERVISORS

OFFICE OF THE LEGISLATIVE ANALYST

LEGISLATIVE ANALYSIS

TO: HONORABLE MEMBERS OF THE BOARD OF SUPERVISORS

FROM: Gabriel Cabrera, Legislative Analyst gc

DATE: June 22, 2000

SUBJECT: INFORMATION TECHNOLOGY WITHIN SAN FRANCISCO

Summary of Requested Action

Motion requesting the Office of the Legislative Analyst (OLA) to examine the structure and cost of information technology (IT) within San Francisco and to make recommendations for improvement. This report contains (1) a general description of the City's IT management structure, (2) a broad estimate of City spending on information technology, (3) examples of "best practices" in other jurisdictions, (4) a discussion on technology issues specific to San Francisco and (5) recommendations for improvement.

The Structure of Information Technology

The City and County of San Francisco (the "City") currently depends on a number of City agencies for IT services, each with defined roles as described below.

The Committee on Information Technology (COIT) is the policy-making group that formulates policy and defines the direction of information technology in the City. These activities are carried out with the assistance of the Strategic Management and Planning Group (described below), task forces, work groups and COIT staff. COIT is responsible for the review of any IT project over $5 million and the monitoring of all multi-departmental and citywide projects.

COIT is composed of the Mayor's Budget Director, a member of the Board of Supervisors, the Controller, the Director of DTIS or their designee, and one department head from each of the following six groupings: (1) Public Protection, (2) Public Works, (3) Human Welfare and Neighborhood Development, (4) Community Health, (5) Culture and Recreation and (6) General Administration and Finance.

The Strategic Management and Planning Group (SMPG) is responsible for research, investigation and general gathering of information to support the policies and decisions put forth by COIT. It is also responsible for the Annual IT Business Folio (which is a questionnaire regarding each department's IT environment, business plan and future strategy) and the review of any IT projects over $2 million and less than $5 million.

SMPG assists COIT to establish overall goals and define the annual objectives to be accomplished by City departments. SMPG is composed of business-oriented management representing a cross-section of City departments. Currently, the SMPG consists of one representative from each of the following City departments:

Board of Supervisors, Rent Arbitration, Public Works, Administrative Services, Port, DTIS, Human Resources, Public Health, Public Utilities Commission and the Sheriff.

The Department of Telecommunications and Information Services (DTIS) is responsible for providing telecommunications and information services to City departments. DTIS provides hardware acquisition, software acquisition and development, network support, Website development and support, telephone billing, cellular phone and pager services, and telephone infrastructure support to departments. The Department also manages the City's cable access television channel (Citywatch Channel 26).

The Telecommunications Commission acts as an advisory body to the Mayor, the Board of Supervisors and the Department of Telecommunications and Information Services on telecommunications related issues. This Commission consists of five members appointed by the Mayor including one member with expertise in fields related to the Commission's work, one member representing the public, educational and government access to technologies and at least two members representing the interests of consumers and the general public.

Individual departmental technology staffs implement, operate and maintain systems serving those departments that have built their own technology units. Departments that have sufficient funding sources and a commitment to technology are able to hire the staff necessary to develop internal IT systems. Attachment I describes several City departments with sizable IT systems and staff.

In many cases, City departments have options as to where to go for services. For instance, IT consulting services can be obtained from (a) DTIS, (b) recruited and staffed internally and/or (c) provided by a private contractor. In other cases, City departments must receive IT services exclusively from the City. Telephone billing, for example, is provided only by DTIS.

The Cost of Information Technology

Determining the total cost of information technology in the City is not as simple as opening the City and County budget and pointing to a line item for "IT." Because each department may obtain services through various channels as discussed above, it is useful to think of IT costs in terms of the following four categories:

(1) DTIS costs - Departments enter into "work order" agreements with DTIS for technology support. Attachment II, provided by DTIS, shows that in FY 1999-2000, citywide work order agreements with DTIS totaled $54,315,658.

(2) Internal departmental IT costs - As noted above, many departments have built their own IT systems and staff internally. These costs are embedded in each department's total annual budget. Based on cost data provided by the Controller's Office, in FY 1999-2000, the City budgeted approximately $6,733,819 for "Data Processing Equipment" (or IT-related equipment) and $38,229,529 on IT staff.[1]

The Controller's staff advise that in FY 1999-2000, City spending on IT equipment may be significantly higher than the above-noted $6,733,819 because (1) some IT equipment costs may have been budgeted under the general category of "Equipment Purchase Budget" and (2) other IT equipment like PC's may have been categorized as "Materials and Supplies" (according to the Controller's staff, because typically PC's have a useful life of less than three years, they are more like operating costs than capital costs). In fact the City's

[1] City spending on IT staff actually totaled approximately $56,756,419, including $45,771,306 for salaries and $10,985,113 for fringe benefits (@ 24 %). However, we've deliberately excluded DTIS staff costs ($18,526,890) because they were paid from recovered work order funds. As such, for the purposes of this report, City spending on IT staff is $38,229,529.

Computer Store purchases totaled approximately $45 million between October 1, 1998 and October 1, 1999 (the latest one-year period of available data). However, this $45 million figure includes approximately $10 million for IT consulting services and is most likely inflated by technology purchases for the City's special projects (described below), according to COIT staff.

(3) Consultant contract costs - Many departments opt to hire private consultants to build, implement and maintain their IT systems. These costs are incurred by departments either on their own or via the City's Computer Store. As noted above, between October 1, 1998 and October 1, 1999, Computer Store IT consulting costs totaled approximately $10 million. No citywide approach currently exists for tracking consulting costs incurred outside of the Computer Store. A survey of individual departments would have to be performed to determine these costs.

(4) Special project costs - Occasionally, the City initiates "special projects" to install technology on a citywide basis (e.g., the E-911, Y2K and Tivoli projects). According to City IT officials, City spending on multi-year special projects varies from year to year. Attachment III, provided by COIT, lists special projects that are either in progress or were recently completed, and includes their associated costs.

Information Technology in Other Jurisdictions

The City of Phoenix, which received a grade of "A-minus" in the category of IT management from the Government Performance Project 2000, maintains a "coordinated decentralized" environment.[2] Phoenix's IT environment allows City departments to employ any technology that lies within certain frameworks established by its Information Technology Department (ITD).

These ITD frameworks include but are not limited to (a) an "Information Technology Policies, Standards, and Guidelines" manual which reiterates City policies and standards regarding technology and (b) a rolling "10-Year Architecture Vision" for technology purchases and maintenance. Phoenix's ITD Director, otherwise known as its Chief Information Officer (CIO), is responsible for maintaining the balance between departmental autonomy and centralized management with respect to IT matters. ITD requires all departments to submit annually a three-year plan with funding requests for technology to support the plan. ITD then reviews the plans for adherence to standards and conformance to Phoenix's 10-Year Architecture Vision, and prioritizes funding requests for the City's budget staff.

The City of Philadelphia, which received a "B-plus" grade with regard to IT management from the Government Performance Project 2000, has a centralized structure where the Mayor's Office of Information Services (OIS) is responsible for making policy decisions on citywide acquisition and management of technology. The head of OIS is Philadelphia's Chief Information Officer. However, while some IT activities are centralized like network and database operations, others are both centralized and decentralized, including systems development, as described below.

Policy-wise, OSI oversees all decisions on IT within the City government, including standards, consulting and training. Procedurally, OIS reviews and approves all IT services and products prior to their acquisition. Process-wise, OIS assists departmental project teams to acquire City and external resources in order to determine requirements and build and/or buy technology. Under this three-tier structure, the City operates certain citywide networks and databases, while allowing individual departments to build and maintain their own IT equipment and staff. Moreover, Philadelphia requires all departments to submit two-year IT plans

[2] Governing.com, Magazine of States and Localities. February 2000. "Grading the Cities, A Management Report Card."

as part of the City's annual business and budget planning process. The City's Initiative Compliance Committee (ICC) oversees IT strategies, approvals and funding.

Discussion on Information Technology

The Gartner Group, a leading provider of IT research and analysis, generally advocates for centralized/decentralized (hybrid) structures like those in Phoenix and Philadelphia. Although these cities have their own unique IT environments, they share some characteristics including but not limited to: (1) a strong Chief Information Officer (CIO), (2) departmental autonomy with respect to initiating projects, (3) a long-term architectural vision for information technology, (4) an enforceable set of IT standards and (5) departmental IT plans that are closely tied to the budget process.

By comparison, San Francisco's current management structure may be generally described as decentralized. Although the City maintains a central steering committee (COIT) and support organization (DTIS), many City departments have found it expedient to build their own IT systems and staff internally. Typically these departments are enterprises, e.g., the Airport, MUNI and Public Works, that have the funds and staff to implement and maintain their own technology. There are other departments which lack these elements and therefore, tend to fall behind in their technology despite DTIS support. According to City IT officials cited in a 1996 KPMG report, small-sized City departments must often choose between expanded services to the public and information technology.[3] The obvious choice is not for new technology, according to KPMG.

Liza Lowery is the head of DTIS and functions as the City's Chief Information Officer (her official title has not yet been determined). She reports directly to the Mayor and provides strategic planning and leadership for technology in the City. However, executive decisions concerning technology are made through COIT, the City's IT policy-making committee. All City purchases of technology must be approved by COIT, according to the City's Administrative Code. However, COIT officials report that some City departments bypass COIT review by purchasing their own technology with non-General Fund dollars. Although this behavior is atypical, it allows for the creation of disparate IT systems in the City, according to COIT officials.

COIT requires departments to submit three-year plans for IT on an annual basis. COIT then approves these plans as submitted or returns them to their respective departments for changes necessary to meet existing City standards and strategy. COIT mandates the use of certain PC's, operating systems and network applications, but San Francisco's "Strategic Plan for Information Technology" is outdated, according to City IT officials.[4] KPMG noted that without such a plan, departmental IT plans lack strategic-level direction.

Currently, DTIS and the Telecommunications Commission are in the process of creating a new Telecommunications Plan. The primary purpose of the plan is to develop a strategy to meet the City's internal telecommunications needs and ensure telecommunications resources are available to City residents and businesses. As part of the plan, DTIS recently completed a survey of San Franciscans concerning their IT needs. Additionally, DTIS is leading an effort to create an E-government Strategy to guide the City through the technological changes necessary for E-government operations via the Internet (e.g., permit applications, bus schedules and voting). Both the Telecommunications Plan and the E-government Strategy are scheduled to be released in the summer of 2000.

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[3] In 1996, KMPG Peat Marwick, LLP, a private consultant, worked with San Francisco officials to develop a citywide "Strategic Plan for Information Technology."

[4] Ibid.

City IT officials and both the KPMG and Civil Grand Jury reports identify the following areas as examples of the City's IT strengths.[5] First there are City departments that have found alternate sources of revenue through non-City funding streams to achieve their IT goals. Typically these departments are "enterprise" organizations that generate self-supporting revenues (e.g., the Airport, MUNI and Public Works). Moreover, the City's Computer Store is an effective and responsive way for departments to acquire needed equipment without the long delays that were typical before its inception.

The KPMG and Civil Grand Jury reports also identify the following areas as examples of the City's IT weaknesses. First each City department submits an annual budget, which is analyzed and approved by the Mayor's Budget Office in apparent isolation from other departments or multi-departmental objectives. As a result of this budget process, long-term technology issues and interdepartmental cooperation on such issues can be easily sacrificed for short-term solutions. Moreover, City departments that are exclusively dependent on the General Fund tend to fall behind in their technology despite DTIS support.

If the City desires to adopt Phoenix's "coordinated decentralized" environment, it would have to make significant changes to its existing IT structure. Most notably, the City would have to consolidate the functions of COIT, SMPG and DTIS into a single IT organization headed by the City's CIO. However, according to COIT officials, because San Francisco is both City and County and its local government is larger than in most other jurisdictions, the single IT organization and CIO may not be able to effectively deliver the services that are presently provided by various City IT agencies.

Some City IT officials already have plans to improve the City's IT environment by implementing new strategies, rather than making structural changes. For example, based on the findings of the above-noted Telecommunications Plan and E-government Strategy, COIT intends to adopt more IT standards and policies and DTIS plans to develop a long term architectural vision for information technology. Additionally, DTIS and the Mayor's Budget Office staff recently met to discuss (a) centralizing the budget process to fund technology on a citywide basis and (b) prioritizing departmental IT projects and funding requests. Implementing any one of these strategies could significantly improve the City's IT environment, according to City IT officials.

Recommendations

As shown above, the City's IT environment is complex. The City currently depends on a number of City agencies for IT services and City spending on information technology falls into several cost categories. Based on this information, examples of "best practices" in other jurisdictions, and interviews with several City IT officials, we've formulated the following recommendations:

1. Urge COIT to adopt more IT standards and policies for City departments and DTIS to develop a long term architectural vision for information technology in the City based on the findings of the proposed Telecommunications Plan and the E-government Strategy.

2. Urge both DTIS and the Mayor's Budget Office to centralize the budget process to fund technology on a citywide basis, and to prioritize departmental IT projects and funding requests.

3. Encourage City departments to share their technological advancements with each other.

[5] San Francisco Civil Grand Jury. 1995-1996. "Information Technology Services in San Francisco Government." San Francisco, California.

4. Increase the number of multi-departmental or citywide IT systems - like the City's financial management and accounting system (FAMIS) - to reduce replication and redundancy and improve information sharing among departments.

5. Amend the City's Administrative Code to require that all City departments obtain COIT approval for their IT purchases (including those made with non-General Fund dollars) in order to avoid the creation of disparate IT systems in the City.

A Survey of City Departments with Sizable "IT" Systems

(This survey does not contain a complete list of departmental IT resources. Instead, it lists only significant hardware and software equipment. In addition, this survey shows only a broad estimate of total annual costs).

Department	IT Staff	Hardware	Software/ Applications	Future Plans	Total Annual Cost
Human Resources	15	Wide Area Network (WAN) consists of 4 Local Area Networks (LANs) located at DHR, Civil Service, Workers Compensation and Health Services. WAN includes 230 PC's and 8 servers. T1 lines from DHR to City's WAN, Workers Comp. and Health Services.	PeopleSoft Human Resources Management System (HRMS) that (among other functions) allows City departments to electronically file and track job requisitions. Other major applications include a Health Services Membership Accounting System and a Workers Comp. Claims Processing System.	Develop E-government applications, such as a Web-based PeopleSoft system, in order to keep pace with the evolving Internet and E-commerce environment.	$4,549,078 (FY 1999-00)
Human Services	32	WAN consists of 10 LANs and includes approximately 850 PC's and 14 servers. T1 lines from WAN to City's WAN.	Welfare Case Data System (WCDS) which includes the Food Stamp Automated Issuance and Reporting System (FAIR). WCDS is supported by DTIS and its vendor EDS.	Beginning in August 2003, WCDS will be replaced with the California Welfare Information System (CalWIN). Various WCDS systems will be automated under CalWIN. Also adding 10 servers and 400 PC's in FY 2000-01.	$9,340,989 (FY 2000-01)

Department	IT Staff	Hardware	Software/ Applications	Future Plans	Total Annual Cost
Juvenile Probation	6	LAN includes 100 PC's and 50 printers. T1 lines from LAN to City's WAN, and to other departmental LANs (i.e. Police, Sheriff, DHR and Superior Court)	Staff and group scheduling, E-mail, personal organizing, Microsoft Professional Office V.97 and a Web-based server.	Adding Word faxes, desktop PC's for all probation officers, a PC-based case management system and a new referral tracking system.	$639,489 (FY 1999-00)
Library	8.5	WAN consists of 26 library branch sites and includes 400 staff PC's, 100 reference desk PC's and 190 public PC's. Plus 17 servers. T1 connectivity throughout WAN and to City's WAN.	Integrated Library System is used for acquisitions, cataloging, inventory, circulation, reference and tech. services. Also Microsoft Office.	Purchasing 100 PC's for public use at 15 branch sites, and starting three COIT approved projects: a Main Library Network upgrade, Branches Network upgrade, and WAN-wide PC upgrades.	$3,353,004 (FY 1999-00)
Port	8	WAN consists of 2 LANs located at Ferry Building and Pier 50D and includes approximately 200 PC's and 15 servers. T1 lines from Ferry Building to City's WAN and to Pier 50D.	Use of citywide systems (FAMIS, ADPICS, and PPSD), Oracle Public Sector Financials, AutoCAD/MAP, Lotus Notes (e-mail), MS Office Suite, and primary network operating system: Novell Netware V5.0	Moving Port HQ's from Ferry Building to Pier One. Installing a Lease Management and Billing System and a Facilities Maintenance Management System.	$1,672,757 (FY 1999-00)

Department	IT Staff	Hardware	Software/ Applications	Future Plans	Total Annual Cost
Public Health	132	WAN includes 40 LANs, 93 servers and over 4,000 PC's, terminals, printers and network devices. 7 discreet T1 lines connecting the major DPH service areas and DPH to CCSF. T1 connectivity from major DPH service areas to WAN hub at 1380 Howard Street.	DPH outsources the majority of its IT system operations to outside vendors. However, many IT functions are performed in-house, such as IT technical support, application system analysis, technical programming support, technical and end-user training.	Continue to refine DPH enterprise infrastructure to keep pace with evolving Internet and E-commerce environment. Develop security requirements for State and Federal healthcare reimbursement programs.	Outsourced amount: $8,119,398 (FY 1999-00) In-house amount: $13,731,367 (FY 1999-00)
Public Transportation (MUNI)	21	WAN consists of 20 LANs and an Intranet (an internal database browser) includes approximately 800 PC's and between 50 and 70 servers. T1 connectivity throughout WAN including from departmental WAN to City's WAN.	Microsoft Back Office Server on all servers, Microsoft Office '97 Standard Edition, primary network operating system: Windows NT.	In process of converting to Microsoft Office 2000, and implementing TESS, the City's time keeping system, and an Accident Reporting System. Also creating prototype of vehicle maintenance/ inventory control system.	$6,550,000 (FY 1999-00)

Department	IT Staff	Hardware	Software/ Applications	Future Plans	Total Annual Cost
Public Utilities Commission	42	WAN includes an IBM mainframe computer, 35 LANs, 36 servers and over 1,100 PC's. T1 connectivity throughout WAN and to City's WAN.	Microsoft Office, E-mail, dial in facilities for PUC employees. Large enterprise systems include Water and Sewer Billing, Time-keeping, Maintenance Management, Materials Management, Accident and Claims Reporting and Financial Reporting.	Developing an Intranet System and Customer Inquiry Tracking System and investigating E-business applications such as an online Permit Application System.	Approx. $6.2 million (FY 1999-00)
Public Works	34	WAN includes approximately 1,200 PC's, an IBM mainframe host, 22 LANs, and 35 servers. T1 connectivity throughout WAN, including from departmental WAN, LANs and mainframe to the City's WAN.	Mainframe, LANs and servers combined run 310+ applications. Applications are as varied as they are numerous (i.e. Finance/Account., Contract Tracking, GIS, Engineering, etc.	During the 1999-2000 budget process, the Department proposed automating a growing number of functions, reducing future overhead costs.	Not available as of the writing of this report.

Attachment II

Dept	Dept Name	081ET	081C5	081C9	081Y2K	Total
AAM	Asian Art Museum	77,498	21,242			98,740
ADM	Administrative Services	64,957	613,436			678,393
ADP	Adult Probation	75,005	361,366			436,371
AGE	Commission on Aging	16,302	12,720			29,022
AGW	Co. Ag/Weights/Measures	32,115	7,910			40,025
AIR	Airport Commission	-	299,931		75,104	375,035
ANC	Animal Care & Control	15,729	45,956			61,685
ART	Art Commission	14,171	10,407			24,578
ASR	Assessor/Recorder	49,656	808,975			858,631
BOS	Board of Supervisors	132,758	158,641			291,399
CAT	City Attorney	304,156	223,615			527,771
CFM	Convention Facilities	3,200	7,260			10,460
CHF	Child/Youth/Family	14,602	77,254			91,856
CME	Med Examiner/Coroner	11,603	42,507			54,110
CON	Controller	98,609	6,357,945			6,456,554
CPC	City Planning	46,732	28,044			74,776
CRT	Trial Courts	818,540	670,531			1,489,071
CSC	Civil Service Comm	12,246	17,332			29,578
CWP	Clean Water	450,000	16,166			466,166
DAT	District Attorney	312,892	470,853			783,745
DBI	Bldg Inspection	170,593	102,474			273,067
DPT	Public Trans (MUNI)	1,040,419	467,137			1,507,556
DPW	Public Works	622,623	1,037,814			1,660,437
DSS	Human Services	620,344	2,639,817			3,260,161
ECD	Emergency Comm	111,641	310,998	1,170,139		1,592,778
ECN	Bus & Econ Devel	-	25,568			25,568
ENV	Environment	7,923	17,165			25,088
ETH	Ethics Commission	4,943	89,103			94,046
FAM	Fine Arts Museum	-	10,264			10,264
FIR	Fire Department	593,243	917,498	1,302,750		2,813,491
GEN	General City Responsibility	-	428,022			428,022
HCN	Community Health Network	2,723,398	(2,723,398)			-
HHP	Hetch Hetchy	186,243	50,223			236,466
HPH	Dept of Public Health	1,807,277	3,889,816			5,697,093
HRC	Human Rights Comm	31,267	33,043			64,310
HRD	Human Resources	154,639	1,365,660			1,520,299
JUV	Juvenile Probation	168,123	126,366			294,489
LHP	Light/Heat/Power	2,850	585,579			588,429
LIB	Public Library	243,048	39,585			282,633
LLB	Law Library	5,708	22,525			28,233
MYR	Mayor	243,583	519,670			763,253
PAB	Board of Appeals	1,376	8,985			10,361
PAG	Public Admin/Guardian	24,997	9,494			34,491
PDR	Public Defender	80,124	305,804			385,928
POL	Police	1,614,387	2,854,409	4,212,446		8,681,242
PRT	Port Commission	118,886	87,877			206,763
PTC	Parking & Traffic	205,328	364,437			569,765
PUC	PUC	555,564	690,139		442,196	1,687,899
REC	Recreation & Parks	224,613	264,551			489,164
REG	Dept of Elections	47,694	23,205			70,899
RET	Retirement System	43,158	4,204,585			4,247,743
RNT	Rent Arbitration Board	48,059	1,029			49,088
SCI	Academy of Science	63,194	6,608			69,802
SHF	Sheriff	350,756	553,731			904,487
TIS	DTIS	241,330				241,330
TTX	Treasurer/Tax Collector	140,382	1,845,995			1,986,377
WAR	War Memorial	20,394	14,114			34,508
WOM	Status of Women	5,000	3,903			8,903
WTR	Water Department	285,600	-		307,660	593,260
		15,359,478	31,445,885	6,685,335	824,960	54,315,658

081C5	IT and Telecom Services
081ET	Telephone Pass Through Billing
081C9	E911 Tech Support
081Y2K	Y2K Remediation

Source: Department of Telecommunications & Information Services.

Citywide "Special Projects" and Their Associated Costs

Special Project	Status	Contract Costs			On-going costs?
		Projected	*To Date*	*Total*	
Tivoli	In-progress	$7,125,110	-	-	Yes
Peoplesoft	In-progress	-	$5,000,000	-	Yes
Y2K Project	Completed	-	-	$5,082,293	No
E911 Project	Completed	-	-	$167,000,000	Yes
Court Management System	In-progress	-	$1,500,000	-	Yes

Source: The Committee on Information Technology.