

Howard County Maryland
Department of Technology
and
Communications

Information Technology Strategic Plan

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TECHNOLOGY AND COMMUNICATIONS VISION

Our vision is to create a culture of excellence and customer service through innovation, optimization of communication, and customer service values. Our department will maintain a strong symbiotic relationship with all government departments, agencies, quasi government organizations, and our community.

TECHNOLOGY AND COMMUNICATIONS MISSION

Our mission is to provide the tools and information (technological resources) required by our customers, assisting them in removing obstacles hindering optimal occupational performance.

What have you done today to remove an obstacle for a customer?

STRATEGIC PLAN PURPOSE

Over the last thirty years, information technology use at Howard County has evolved from manual typewriters to fully automated mobile data collection devices. As we enter the 21st century, the pace of technology growth has become ever more rapid. It is important for the County to shift to a more proactive approach to its use of information technology. Howard County is committed to being a government leader in the positive use of information technology to deliver effective services to its staff, partners and citizens. Especially in these times of constrained resources, the most important thing we can do is to invest in the tools and processes of automation to support limited staff across the organization in serving our community.

The purpose of this Countywide Information Technology Strategic Plan is to provide guidance for ALL departments and decision makers in making significant improvements a reality over the next four years.

This Countywide Information Technology Strategic Plan is presented in outline form.

GOALS

Goals are broad statements to guide information technology over the next four years. Objectives are general statements of what Howard County hopes to achieve. Strategies are the approaches to be used to meet the objectives. Activities are suggested tasks with measurable actions to achieve desired outcomes. The goals, objectives, strategies and activities of the plan were developed with the following beliefs:

- Technology planning and delivery is best when based on a comprehensive organizational model
- It is essential to have a strong partnership and positive communications between departments and the central Division of Information Technology
- Migrating data and applications from desktop to enterprise (countywide) systems will be implemented with the aim of increasing ease of work without impeding local user flexibility
- Clarity and visibility of technology responsibilities and processes is vital
- Technology investment funding needs to be built into long-range capital planning

PLAN OVERVIEW

This Countywide Technology Strategic Plan presents six general goals along with objectives, strategies and activities to achieve each goal.

Technology Goals

- Provide Timely Access to Information
- Seek Opportunities to Improve Work Processes
- Approach Technology Projects with an Emphasis on Data Integration
- Deploy Secure and Reliable Information Systems
- Deliver Services in a Responsive and Cost Effective Fashion
- Actively Lead Information Technology

These goals are essential in providing technology services to staff, partners and citizens.

PLAN ACCOUNTABILITY AND REVIEW

Accountability and review cycles will be critical to the success of the strategic plan. Goal 6 (Actively Lead Information Technology) emphasizes the importance of accountability and review. A few of these activities are listed below:

- Improve the communications of progress updates
- Apply and refine the use of performance measures
- Communicate the results of measured performance
- Report progress to multiple audiences (Council, users, technologists)
- Monitor and report on the implementation of the strategic plan
- Review, refine and update the strategic plan at least annually

GOAL 1: PROVIDE TIMELY ACCESS TO INFORMATION

Use Web as primary vehicle for access to County documents

- Develop public records electronic access and management policies
- Integrate Web with document management system (Alchemy) and other County business systems
- Deploy a Web-GIS portal for universal access to County information
- Establish the Web as a universal tool for distributing countywide information to employees
- Publish countywide services Frequently Asked Questions (FAQ)
- Implement robust County Web site search services
- Explore implementing a download site for community requests for public datasets (e.g. Web or FTP)
- Provide login access to appropriate Web services

Expand Web experience to include business processes

- Automate application process for County services (e.g. Jobs, permits, reservations, and other applications)
- Implement e-commerce technologies to accept on-line payment
- Develop form routing capabilities to automate the approval process
- Provide citizens and partners with transparent access to transactions (e.g. Permit or contract status)
- Explore electronic tools for facilitating community dialog (e.g. Forum, listserv, wiki)

Promote updates to Web content

- Encourage departments to actively maintain Web site using content management software
- Keep dynamic Web content current

Increase the digital capture of information at its point of origin

- Equip field teams with mobile devices
- Deploy a common scanning technology for desktop input and indexing of documents

Develop processes to maintain the integrity of digital information

- Validate information at point of origin
- Establish countywide standards for common data formats
- Identify opportunities for data standardization

Expand "virtual" office to remote staff and partners

- Provide remote access to County business systems
- Continue to support and enhance remote computing capabilities beyond current e-mail access (e.g. Intranet access, file servers, etc.)
- Deploy secure access to authorized remote staff to County business systems
- Increase electronic transactions with partners

GOAL 2: SEEK OPPORTUNITIES TO IMPROVE WORK PROCESSES

Apply standard techniques

- Identify and adopt techniques for documenting workflows
- Promote countywide use of workflow documentation through education and training
- Identify and document key information workflows
- Identify and address security and privacy issues
- Analyze information workflows for improvement and automation

Evaluate and prioritize automation

- Build "business cases" for the introduction of new information technologies to automate key information workflows
- Select priority workflows for automation

Implement selected enterprise solutions

- Develop enterprise applications to improve countywide information workflows
- Educate users and monitor workflow solutions
- Train users on new work processes
- Periodic review and revision of workflows

GOAL 3: APPROACH TECHNOLOGY PROJECTS WITH AN EMPHASIS ON DATA INTEGRATION

Support and coordinate countywide data management activities

- Coordinate technical data management activities across departments
- Inventory key department and countywide data and ownership
- Apply countywide standards for data collection, quality, storage and retrieval

Support geographic information systems (GIS)

- Support GIS Policy Committee, departmental and central GIS staff implement a countywide GIS
- Organize digitally submitted data for efficient search and retrieval by location (e.g. Geo-hazard studies, wetland reports)

Encourage desktop to enterprise database migration

- Provide enterprise database infrastructure to consolidate databases
- Provide central database server capacity for tabular and GIS datasets
- Provide consolidation and reporting of countywide datasets using Technologies (e.g. Data warehousing and Web services)
- Partner with departments to populate centralized databases
- Work with department data administrators to inventory business critical desktop databases
- Upsize business critical desktop databases to central enterprise databases (e.g. MS Access to MS SQL Server)
- Provide department data custodians with administrative rights to their data on central database servers

Create data integration opportunities

- Build an enterprise system architecture to facilitate cross-department and external data integration
- Identify data standards for types and key fields
- Develop database key structures to enable cross departmental and database reporting
- Establish location (parcel, address, latitude/longitude) as a common database key to join information from disparate databases

Implement Web services

- Construct Web service interfaces for all business critical systems
- Develop a common language that applications can use to communicate with Web service interfaces (e.g. Persistent Uniform Resource Locator)
- Approach technology projects with an emphasis on data integration
- Encourage and support cross-department and external technology collaboration
- Require new technology solutions to have interfaces to existing and planned business systems

GOAL 4: DEPLOY SECURE AND RELIABLE INFORMATION SYSTEMS

Establish and monitor system availability and performance targets

- Identify departments' critical business information systems
- Establish measurable performance standards (metrics)
- Enter into Service Level Agreements with responsible parties (partners and service providers)

Implement monitoring and reporting

- Monitor business critical information systems
- Provide monthly reporting of actual usage and performance

Maintain business continuity

- Develop disaster recovery procedures and safeguards
- Implement periodic testing of disaster recovery procedures and safeguards
- Provide semi-annual reporting of disaster recovery simulations

Maintain secure information systems

- Develop countywide security levels for systems and data
- Seek appropriate counsel (e.g. legal, audit, current policies)
- Publish data access policies
- Implement standardized security levels on business critical systems
- Actively monitor and respond to security breaches
- Enhance intrusion detection
- Perform periodic security audits with published results and mitigation plans
- Develop, publish and follow security incident response procedures

Security education and compliance

- Promote security awareness across all staff
- Conduct regular security training for management and staff

Maintain reliable information systems

- Apply industry-standard technology "best practices"
- Adopt formal change management procedures (e.g. maintenance windows, departmental notification, documentation of technical changes)
- Maintain logs of changes on all critical business systems
- Perform development and staging activities on non-production systems

Implement fault tolerant systems

- Deploy redundant hardware solutions for critical business systems (e.g. Redundant Array of Independent Drives)
- Enhance storage, backup and restoration systems
- Identify countywide and department specific needs
- Develop and implement department and countywide backup procedures
- Conduct periodic restoration tests and document results
- Explore new data storage technologies (e.g. Storage Area Networks and Network Attached Storage)

GOAL 5: DELIVER SERVICES IN A RESPONSIVE AND COST-EFFECTIVE FASHION

Implement Information Technology Help Desk Ticket System

- Deploy countywide Help Desk ticket system
- Provide customers with transparent access to all work tickets to provide self-service updates on work progress and priorities
- Improve services and balance priorities
- Perform regular analysis of service request patterns to improve service delivery
- Publish detailed monthly reports on accomplishments and workload to help align resources with priorities

Improve technology procurement and installation process

Create a procurement improvement task force

- Document the technology procurement and installation processes
- Explore opportunities for using enterprise systems such as document management (Alchemy), e-mail/groupware (GroupWise) or a new help desk ticket system to automate procurement
- Prepare and implement an action plan to streamline technology procurement and installation
- Stage procurement evenly throughout the year
- Establish average time for technology procurement and installation (e.g. Three weeks for personal computer)
- Publish current pre-approved lists of standard hardware, software and "fringe" technology (e.g. Facsimile machines and copiers)
- Provide customers with access to the status of procurement orders

Foster technology proficiency in all staff

- Foster trust and cooperation among all countywide technology staff
- Clearly define department Information Technology Contact roles and responsibilities in the overall information systems support structure
- Increase department Information Technology Contacts' ability to handle first-level technology support

Work to improve countywide technology skills

- Survey departments to identify priority technology education needs
- Provide countywide training tailored to end users
- Deploy and actively maintain a Frequently Asked Questions (FAQ) technology support knowledge base on the Intranet which will become the user's first point of problem resolution

Place a premium on customer satisfaction

- Develop strategies for maintaining customer satisfaction in a resource-constrained environment
- Actively communicate project activities, successes and issues to customers and management
- Seek frank feedback from customers about services
- Manage customer expectations through improved communications using project management tools such as timelines and status reports
- Formalize service area roles and assign direct and backup responsibilities
- Publish general service area responsibilities to clarify customer support channels (e.g. Who do I call?)

Expand technology consulting services

- Identify unmet technology consulting needs
- Build internal and external technology consulting capacity to meet the growing department needs to improve business processes with technology (e.g. Technology project management, application development, etc.)
- Consider separating consulting from operations to promote both service areas as a priority

Reduce desktop support costs

- Improve the use of desktop standards to lower costs
- Regularly review and advance standards
- Explore managed personal computer concepts
- Develop department or role level standard computer images
- Research alternative acquisition strategies

GOAL 6: ACTIVELY LEAD INFORMATION TECHNOLOGY

Identify plan priorities and refocus staffing for implementation

- Engage stakeholders in prioritization process
- Seek peer review from external experts
- Publish and communicate plan priorities

Refocus staffing toward priority plan initiatives

- Revise Division of Information Technology work plans and staff assignments
- Revise departmental staff work plans and staff assignments
- Determine and address staffing gaps
- Consider methods to foster partnership between IT and departments
- Provide targeted technology training
- Establish and document technology training plans
- Fund required training

Evolve infrastructure for plan implementation

- Follow plan priorities and proactively invest in infrastructure
- Incorporate plan into budgeting process
- Create a "large systems" selection process
- Develop a "business case" approach to evaluate costs and benefits of new technology projects and significant technology purchases
- Craft project submission and prioritization processes
- Establish standards for applications, personal computer hardware and peripherals
- Develop a Technology Projects Plan (4-Year)

- Establish and document enterprise architectures
- Update and maintain services, hardware and application inventories
- Conduct annual review of accomplishments with departments and technology oversight bodies
- Identify large technology projects
- Project capital needs (e.g. New phone system)
- Draft detailed Technology Projects Plan(s)

Apply "best practices" in managing technology projects

- Identify project management "best practices"
- Create a team of organizational project management leaders
- Establish core project management expectations
- Develop practical set of project management techniques by project scale
- Obtain project management certification for at least one senior staff member (e.g. Project Management Institute)
- Incorporate project management techniques into daily operations
- Deploy project management resources, aids, templates on the Intranet
- Use risk management techniques to plan for organizational concerns (e.g. Security and legal)
- Plan for ongoing support and maintenance
- Publish monthly project status reports on the Intranet
- Setup review cycles at the conclusion of large projects

Govern for effective information technology

- Review current leadership configuration
- Develop a comprehensive list of all technology committees and clarify their respective roles and responsibilities
- Clarify advisory from decision-making authority
- Review other organizations for insights where governance and technology excel
- Revise governance to support implementation of the strategic plan
- Conduct ongoing review of the effectiveness of the governance structure

Enhance methods for monitoring technology progress

- Improve the communications of progress updates
- Apply and refine the use of performance measures
- Communicate the results of measured performance
- Report progress to multiple audiences (e.g. Council, users, technologists)

Increase effectiveness of policy, standards and guidelines

- Update policies to reflect strategic plan
- Develop and refine policies as identified (e.g. Technology security)
- Communicate policies and provide ongoing training to users

Conduct periodic Information Technology Strategic Plan review

- Monitor and report on the implementation of the strategic plan
- Review, refine and update the strategic plan at least annually

TERMS

Best Practice: A superior method or innovative practice that contributes to the improved performance of an organization, usually recognized as "best" by other peer organizations.

(Source: American Society for Quality Dictionary)

Business Case: A structured proposal for business improvement providing a decision package for organizational decision makers. A business case includes an analysis of business process performance and associated needs or problems, proposed alternative solutions, assumptions, constraints, and risk-adjusted cost/benefit analysis.

(Source: U.S. General Accounting Office Business Process Reengineering Assessment Guide)

Client-side: Occurring on a local client computer in a client-server system. For example, on the World Wide Web, some programming scripts are considered client-side because they are executed by your local computer's Web browser. In contrast, other programming scripts are considered server-side because they run on the Web server.

(Source: Modified Webopedia)

Disaster Recovery: Methods for ensuring an organization recovers from natural and human-caused disasters that affect its computer-based operations.

(Source: McGraw-Hill Online Learning Center)

E-Business (Electronic Business): Conducting business on-line via the Internet. It not only includes buying and selling but also serving customers and collaborating with partners.

(Source: Modified SearchCIO.com)

E-Commerce (Electronic Commerce): Buying and selling products and services on-

line via the Internet. *(Source: Modified SearchCIO.com)*

E-Government (Electronic Government): Delivering government service through electronic means such as the Internet. The application of e-business technologies and strategies to government organizations. *(Source: Modified Unisys 2000 Annual Report Glossary)*

Enterprise Architecture: The overall configuration of technology (software, networks, hardware, data) to most effectively support organization-wide needs.)

Geographic Information System (GIS): An arrangement of computer hardware, software, and geographic data people interact with to integrate, analyze, and

visualize the data; identify relationships, patterns, and trends; and find solutions to problems. The system is designed to capture, store, update, manipulate, analyze, and display the geographic information. A GIS is typically used to represent maps as data layers for study and analysis.

(Source: Environmental Systems Research Institute GIS Dictionary)

Global Positioning System (GPS): A constellation of 24 radio-emitting satellites deployed by the U.S. Department of Defense and used to determine location on the earth's surface. The orbiting satellites transmit signals that allow a GPS receiver anywhere on earth to calculate its own location through triangulation. The system is used in navigation, mapping, surveying, and other applications in which precise positioning is necessary.

(Source: Environmental Systems Research Institute GIS Dictionary)

Help Desk Ticket System: Software which assists in tracking and prioritizing computer support requests.

Infrastructure: The computer and communication hardware, software, databases, people, and policies supporting the organization's information management functions.

Listserv: An automatic mailing list server. When e-mail is addressed to a LISTSERV mailing list, it is automatically broadcast to everyone on the list.

(Source: Modified Webopedia)

Large system: A critical business technology serving one or more departments. Howard County examples include e-mail (Novell GroupWise) and document management (Alchemy).

Portal: A main "point of entry." In technology terms, a portal typically refers to a Web site serving as gateway to a large amount of information and services.

Remote computing: Using computer devices away from an organization's primary location(s).

Server-side: Occurring on a central computer server in a client-server system. For example, on the World Wide Web, some programming scripts are considered server-side because they run on the Web server. In contrast, other programming scripts are considered client-side because they are executed by your local computer's Web browser.

(Source: Modified Webopedia)

Service Level Agreement: Abbreviated SLA, a contract between a service provider and the end user that stipulates and commits the provider to a required level of service. An SLA should contain a specified level of service, support options, enforcement or penalty provisions for services not provided, a guaranteed level of system performance as relates to downtime or uptime, a specified level of customer support and what software or hardware will be provided.

(Source: Modified Webopedia)

Technologists: Howard County staff with technology responsibilities. This includes staff in the Information Services Division as well as staff in other departments with roles such as Information Services Contacts, GIS specialists, data administrators and Web contacts.

Thin Client: In client/server applications, a client designed to be especially small so that the bulk of the data processing occurs on the server. Although the term thin client usually refers to software, it is increasingly used for computers, such as network computers that are designed to serve as the clients for client/server architectures. A thin client is a network computer without a hard disk drive, whereas a fat client includes a disk drive.

(Source: Modified Webopedia)

Virtual: Not real. The term *virtual* is popular among computer scientists and is used in a wide variety of situations. In general, it distinguishes something that is merely conceptual from something that has physical reality. A *virtual* front counter is a front counter that is simulated using computer technologies such as electronic documents and forms, on-line payment, etc.

(Source: Modified Webopedia)

Virtual private network (VPN): A network technology allowing a public network such as the Internet to establish a secure connection between two remote locations.

(Source: Modified Webopedia)

Web: A computer network with a collection of informational sites with text, graphics, sound and animation resources viewable by desktop "Web" browsers. The Web typically refers to the World Wide Web on the Internet, but it may also refer to an internal intranet.

Wiki: A collaborative Web site comprised of the perpetual collective work of many authors.

(Source: Modified Webopedia)