

Offices Under the President Technology Strategic Plan

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MISSION

BOT plans, develops, and maintains enterprise technology services according to its guiding principles: lifecycle management, cloud-smart, shared-first, sustainability, transparency, continuity, Countywide standardization, and reuse before buy, and buy before build.

- **Lifecycle management:** the administration of an IT system from provisioning, through operations, to retirement
- **Cloud-smart:** this term is adopted from the Federal Cloud Computing Strategy and means the strategic use of cloud data storage to reduce the need for onsite maintenance and equipment upgrades
- **Shared-first:** this expression is adopted from the federal government's IT strategy and means that BOT will look to share platforms and software across the enterprise rather than have each department or office utilize multiple vendors for the same type of product
- **Sustainability:** ability to provide ongoing support and maintain applications, platforms, etc.
- **Transparency:** using public-facing technology to provide insight into Cook County operations and initiatives
- **Disaster Recovery and Business Continuity:** stability of IT services during emergencies that threaten outages and equipment or software failure
- **Standardization:** the process of developing and promoting standards-based and compatible technologies and processes for County government IT
- **Reuse before buy:** this is a common principle of IT architecture that means that existing solutions will be considered before considering new alternatives, which provides for faster and cheaper implementation of IT solutions
- **Buy before build:** this is a common principle of IT architecture that means that IT solutions are bought and not built in-house, which provides for lower maintenance costs, better performance, necessary patches or updates, and less need for staff with technical expertise

BOT PROGRAM AREAS

APPLICATION MANAGEMENT AND MODERNIZATION

- **Applications and Development** — Provides consulting, development, enhancement, maintenance, and support of applications. Resolves application incidents and delivers new solutions.
- **Enterprise Resource Planning (ERP)** — Handles enterprise systems in areas including Financials, Budget, Supply Chain, Purchasing, Inventory, Human Resources, Benefits, Payroll and Performance Management.
- **Geographic Information Systems (GIS)** — Provides maintenance of and access to the County's enterprise geographic information system. Engages in geospatial data management, analysis and modeling, training, and application development.
- **Program Management Office** — Provides technology program and project management services. Engages in business analysis, requirements development, risk management scope and proposal development.

INFRASTRUCTURE MANAGEMENT AND MODERNIZATION

- **On-site Desktop Support** — Provides on-site troubleshooting of, and support for, technological equipment for various departments under the County Board President and other elected officials.

- **Disaster Recovery and Business Continuity** — Works to ensure technology systems and data are backed up and continue working in case of a disruption.
- **Mainframe Print Operations** — Oversees the County's large-scale print jobs created from the mainframe, including Assessor documents, accounts payable checks, Board of Review documents, jury summons, and revenue letters.
- **Server Engineer Team and Data Center Operations** — Oversees operations of IT systems architecture; provides advanced troubleshooting of, and support for, servers; manages data center infrastructure.
- **Systems Management and Service Desk** — Provides advanced troubleshooting of, and support for, technological equipment; packages software for deployment and implements deployment; engages in consultation and project work.
- **Telecommunications and Network Support** — Oversees administration and management of the County's voice and data telecommunication services.
- **Enterprise Architecture** - Establishes and matures the Enterprise Architecture function in terms of its capabilities, operating model, and governance structure. Defines the role, function, scope, and value proposition for the enterprise architecture function; intersects and informs other technology (data, integration, applications) and business (strategy, capabilities, prioritization) domains. Improves business processes through implementing best practices for building IT solutions to solve business challenges.
- **IT Asset Management** – Works on effectively managing all IT assets from procurement through end of lifecycle disposal to ensure optimal return on investment and optimize spending and support lifecycle management and strategic decision-making within our IT environment.
- **Audiovisual** — Develops standards and practices for conference room audio visual equipment. Provides consultation for conference room audio visual solutions.

RESIDENT TECHNOLOGY ENGAGEMENT

- **Data Analytics** — Provides data guidance, support, and best practices to aid the County in providing efficient services to residents. Maintains the Cook County Data Portal.
- **Overcoming The Digital Divide** – Currently implementing expansion of Chicago Southland Fiber Network (CSFN) with the State of Illinois match grant. Future expansions are being planned with additional ARPA funding.

CYBERSECURITY

- **Information Security Office** — Protects the confidentiality, integrity, and availability of all Cook County information by leveraging cybersecurity capabilities across the enterprise and informing system stakeholders on cyber risk.

ADMINISTRATION

- **BOT Administration** — Establishes IT strategy and leads collaboration with elected offices. Manages accounts receivable and payable, oversees the preparation and management of the budget, oversees contract negotiations, manages countywide IT contracts, and oversees budget and hiring.
- **Legislative and Legal Affairs** — Manages the Bureau's legislative agenda. Monitors local, state, and national legislation related to technology. Works with BOT administration team to manage contracts and vendors. Provides legal counsel.

POLICY ROADMAP

The Cook County Policy Roadmap: Five-year Strategic Plan for the Offices Under the President has been developed by the Office of the President of the Cook County Board of Commissioners. The Policy Roadmap and additional information about Cook County's overall strategy are available on the website at

<https://www.cookcountyil.gov/service/policy-roadmap>

The Bureau of Technology (BOT) aligns its strategy with the Cook County Policy Roadmap. Technology can be leveraged to implement almost every facet of the Policy Roadmap; however, BOT's work is primarily centered in the "Smart Communities" and "Open Communities" domains.

MODERNIZATION

Smart Communities, Objectives 1 and 2

Choosing innovative software and hardware that provide sound returns on investment is a cornerstone of the County's modernization efforts. While the pandemic hastened the move to paperless business processes, OUP has been on this trajectory for years. Digitization and automated processes are more efficient, error-free, and eco-friendly than paper and manual processes. We have been able to reduce our physical footprint for storage, increase information access and accuracy, and provide better data security for the County through BOT's modernization efforts.

APPLICATIONS

Smart Communities, Objectives 1 and 2, Open Communities, Objectives 1, 3, and 4

Creating software applications is time consuming and requires expensive technical expertise. The expense of creation is then compounded by the need to continuously maintain and support these applications with things like security patches and bug fixes. Additionally, maintaining software requires increasing inputs as it ages, like buildings requiring increasing maintenance as they age. To be as efficient with time and money as possible, BOT has adopted a model where its preference is to purchase applications "custom-off-the-shelf", more commonly known as COTS. This practice provides standard solutions for countywide use and is more cost effective than a customized solution. BOT's technical staff and legal counsel carefully vet potential procurements to ensure BOT's standards for quality, data protection, and cybersecurity are met. BOT then helps ensure that the application is configured according to the purchasing department's needs. This enables BOT to operate a lean organization while still providing robust services. The same case management system, for instance, could be set up to serve one department and then reconfigured to serve another department using the same IT staff/team for support.

OUP is in the process of moving County data off legacy systems and into hybrid cloud environments. This project will be complete within the next two years. The computer language on which the legacy systems were built — COBOL — is no longer in common use, making it increasingly difficult to find programmers to maintain them.

Currently, most data housed on the mainframe is property-tax-related and maintained by separately elected officials. One example of the work being done to move off these legacy systems is the Integrated Property Tax System (IPTTS) project. The new system will integrate data from all property tax offices (Treasurer, Assessor, County Clerk and Board of Review) allowing those offices to seamlessly transfer the necessary data to accomplish their respective missions. The result will be a modernized system that is more efficient and effective while being less

expensive to maintain. While OUP data will not be stored in the new system, BOT has assisted the effort through project management and other professional services during the multi-year implementation due to the project's size, breadth and complexity.

INFRASTRUCTURE

Smart Communities, Objectives 1 and 2

Information technology infrastructure includes hardware such as computers, servers, switches, and routers, as well as the facilities that house them. We support data centers on and off-premises, including disaster recovery servers in off-premises data centers. Service continuity across multiple sites for mission-critical applications is becoming an essential standard in data center strategies, impacting not only application design, but also network topologies, IT architectures and physical site location.

Infrastructure modernization efforts are long-term, expensive investments, but they are mission critical. BOT has adopted a Cloud-smart strategy, meaning that BOT considers remotely hosted Cloud solutions first when assessing new procurements. One example of BOT's modernization efforts is migration of the County's legacy phone system to VOIP which transmits voice calls via the internet. For systems that will remain on-premises, BOT is focused on modernizing and consolidating the hosting environment to improve performance and efficiency.

DIGITAL EQUITY

Smart Communities, Objectives 1 and 2

OUP is continuously working to expand residents' access to County services. The pandemic has further exposed the digital divide for residents of communities having inadequate broadband infrastructure. In 2020, OUP applied for a State of Illinois grant to address digital equity. Once the grant was awarded, the County Board committed additional money to the work including ARPA funding. This money is being used to fund expansion of the existing fiber network in the Southlands.

Additionally, BOT is responsible for several ongoing resident-facing modernization efforts. Administrative Hearings has begun its long-anticipated Citation Management project which will unite various previously siloed Departments such as the Forest Preserve, Sheriff's Office and the Department of Revenue to improve processing of Cook County ordinance violation fines and fees. For the first time, residents will be able to pay fines and fees online, providing better customer service and improved compliance. The Department of Revenue has also expanded online functionality, offering taxpayers the opportunity to file documentation and pay most taxes and fees online.

DATA PRIVACY, SECURITY, AND ACCESSIBILITY

Smart Communities, Objective 1

Cook County data includes personally identifiable information, HIPAA-protected records, credit card information, and sensitive criminal justice information. All these data types have different data protection and data governance requirements, necessitating dedicated data privacy staff. BOT is working to implement additional data privacy features to ensure that our employees and residents do not fall prey to data breaches or incidents. BOT's budget in the coming year adds data privacy positions to continue maturing data governance. By expanding the data privacy

team, BOT will help prevent costly data breaches and reduce the possibility of data exposure in the event of a cyber-attack. BOT will develop a framework of trust between IT and departmental executives that focuses on the varying requirements for data protection based on data categorization.

Disaster recovery and business continuity are among the initiatives BOT is coordinating enterprise wide. BOT is in the process of reviewing RFPs for cloud storage and/or colocation solutions to ensure continuous operation of County services in the event of a disaster. Unifying operations and data through a cloud-hosted and consolidated platform will help ensure that County employees can keep operations and essential services running from remote locations if travel to the office is impossible or unsafe. Government services cannot be shuttered due to such developments as inclement weather, natural or human-made disasters, etc., and cloud-hosting critical data allows secure access by employees working from any location.

STAFF DEVELOPMENT

Open Communities, Objective 2

BOT's staff development and talent pipeline efforts are ongoing. BOT has invested significant resources in upskilling current staff so that they continue to develop and evolve in their careers and continuously updates job descriptions. These efforts help ensure that BOT is promoting or hiring technology professionals with the skills needed for a large modern government technology environment, e.g., application management and development, cybersecurity, system architecture, and infrastructure development and stabilization. Recently, progress has been made in increasing staff for project management, ERP operations, application support, telecommunications and network management, cybersecurity, IT architecture, and GIS-related functions. However, a tight job market and rising salaries in the tech sector have made hiring challenging.

Included among the newly created IT positions are:

- Application Developer
- Broadband Program Manager
- Business Architect
- Business Continuity Program Analyst
- Business Continuity Program Manager
- Change Management Analyst
- Change Management Manager
- Chief Information Security Officer (CISO)
- Data Analyst
- Data and Information Architect
- Data Manager
- Data Privacy Analyst
- Data Privacy Officer (DPO)
- Data Specialist
- Deputy Chief Information Security Officer (D/CISO)
- Director of System Architecture
- Disaster Recovery Program Manager
- Disaster Recovery Program Specialist
- ERP Senior Technical Analyst (Finance)
- ERP Senior Technical Analyst (Human Capital Management)
- ERP Senior Technical Analyst (Supply Chain)
- Field Technician
- Geographic Information System (GIS) Developer
- GIS Technical Lead
- Information Security Analyst
- Information Security Specialist
- Information System Security Engineer (2)
- IT Project Coordinator
- Manager of Information Security Risk & Compliance
- Security Architect
- Senior Information Specialist
- Server Engineer
- Service Oriented Architect (SOA)
- Solution Architect

- Storage Engineer
- Supply Chain Risk Analyst
- Systems Management Engineer
- Technology and Infrastructure Architect
- .Net Developer

RECRUITMENT

Open Communities, Objective 2

Relatively low unemployment rates within the IT industry have created an extremely competitive job market. This has created unprecedented hiring challenges for government technology employers. The most striking example of this competitive market can be found in the cyber security area, where the unemployment rate is near zero percent. Although competition for non-cyber security jobs is easing in the private sector, BOT has not seen a significant increase in the rate of applicants at this point.

This has led BOT to adjust its approach to recruitment in three ways. First, BOT is working closely with the Bureau of Human Resources to increase the starting salaries for new hires. As part of this effort, a new IT salary schedule was developed to make BOT salaries more competitive with the IT private sector. Second, BOT has made a greater effort to describe its history, current focus, and vision to prospective hires; information that candidates have responded well to when trying to make their employment decisions. Finally, BOT is promoting the County's benefits package to prospective hires in a more assertive manner since this area of compensation. Outlining in detail the County's health insurance options, paid time off, deferred compensation program and other benefits showcase the County as an employer that genuinely cares about the well-being of its employees and their families. The County's telecommuting policy should further enhance BOT's attractiveness in the tech industry where employees have long had the flexibility of telework.

IT CONTRACT AND VENDOR MANAGEMENT

Open Communities, Objective 2

All this growth and maturation in the County's IT ecosystem has resulted in fewer vendors to manage but more complex transactions. BOT's business office, contract manager and legal counsel work to ensure that IT procurements go as smooth and efficient as possible and that invoices are processed in a timely manner. To accommodate the proliferation of application procurements in recent years, BOT has instituted an industry best practice of utilizing reseller contracts. BOT currently manages several reseller contracts for applications, hardware and networking equipment. The resellers were obtained through competitively bid processes to ensure that the County was getting both excellent service and the best possible pricing. Utilization of the resellers has significantly streamlined the procurement process; now departments and separately elected offices can purchase directly from the County's online marketplace. The vendors listed have been pre-vetted by BOT to ensure that they meet our data privacy and cyber security standards and are part of these reseller contracts.

BOT has a wealth of experienced and talented IT professionals on staff, however at times it is more cost effective to obtain outside assistance. Gartner and Grant Thornton provide IT consultancy services as needed to ensure access to the latest research and thought leadership for IT infrastructure and governance. BOT's high standards for cybersecurity, data privacy, applications, and infrastructure help maintain the integrity and continuous operation of the County's IT network and services.

COMMUNICATION

Open Communities, Objective 4

The fast-paced and ever-changing world of IT has required public- and private-sector organizations to adapt to new technologies and re-engineer business processes at a rapid pace. The modernization effort that BOT has embarked on is unprecedented in the County's history and has required the County Board to make a substantial financial investment over several years. As part of this modernization effort, it is imperative that BOT provide policy makers with as comprehensive a picture as possible of its existing IT environment, challenges, plans, and opportunities.

To accomplish this objective, BOT is placing greater emphasis on educating policy makers, as well as OUP staff, about the County's current and future IT environment. Working closely with the Information Technology Committee of the County Board, this effort includes an expanded strategic plan, more detailed project updates, issue-specific tutorials (e.g., GIS applications and tools), targeted tours of BOT's operation, and ad hoc briefings. Additionally, BOT facilitates two working groups where pertinent issues are discussed by representatives from all the separately elected offices: the CIO Roundtable and the Internet Security Working Group. These monthly meetings help ensure communication, collaboration, and alignment between the various agencies on IT-related issues.

FY2023 AND BEYOND

IT Infrastructure: Asset management streamlining efforts, infrastructure consolidation, digital equity, Enterprise Architecture team building/governance, and establishment of business continuity and disaster recovery teams will be the areas of focus.

On the Applications side, two areas poised to see growth in hiring and purchasing are Enterprise Content Management (ECM) and Digitization Services. For over a decade, organizations have been moving towards "paperless." It is a more efficient, effective and environmentally sustainable way to conduct business. However, going paperless has created significant ancillary needs such as scanning of paper documents (digitization) and data storage in an easily accessible and well-organized manner (ECM) for use by staff or other applications. The last remaining OUP mainframe application belongs to the Department of Animal and Rabies Control, and it will soon be retired.

Cyber security: Cook County will continue to focus on recruiting and retaining motivated cyber security talent that is technically proficient, team-oriented, and service-minded, as well as leverage contract resources to augment capabilities as necessary. The cyber security team also has plans to mature the Information Security Office organization to include resources dedicated to Information System Security Engineering, Supply Chain Risk Management and Data Privacy. Additionally, the Information Security Office (ISO) will complete updates to the information Security Framework to align with the National Institute of Standards and Technology Special Publication 800-53 Rev. 5, Security and Privacy Controls for Information Systems and Organizations. Once complete, the team will operationalize the Information Security Framework incorporating all steps of the Risk

Management Framework. ISO and is finalizing the competitive bid process for an Information Security, Governance Risk and Compliance, and Incident Response Services contract. This will enhance the County's ability to prevent and rapidly respond to cyber security incidents. Once Cook County has retired its mainframe and mid-range applications, and finished its hosting and disaster recovery project, the focus will shift to making department-requested improvements for systems we already have in place, further strengthening our cybersecurity posture and evaluating cutting-edge technologies for eventual adoption, if they meet out criteria for interoperability, efficiency, safety and return on investment.