



COOK COUNTY
BUREAU OF

TECHNOLOGY

2024 BOT Strategic Plan

Contents

- FY2024..... 3
 - Infrastructure 3
 - Applications..... 3
 - Cybersecurity 3
 - Artificial Intelligence and Machine Learning..... 4
- Background 4
- Mission 5
- Program Areas..... 6
 - Application Management and Modernization 6
 - Infrastructure Management and Modernization 6
 - Resident Technology Engagement 7
 - Cybersecurity 7
 - Administration 8
- IT Governance 8
 - CIO Roundtable 8
 - Change Approval Board (CAB)..... 8
 - Information Security Working Group (ISWG)..... 8
 - Purchasing..... 9
 - Hosting and Disaster Recovery..... 9
- Offices Under the President Policy Roadmap 10
 - Modernization..... 10
 - Application Modernization..... 10
 - Infrastructure Modernization 11
 - Digital Equity 11
 - Data Strategy, Governance and Analytics 11
 - Data Privacy, Security and Accessibility 11
 - Staff Development 12
 - Recruitment 12
 - IT Contract and Vendor Management 13
 - Communication..... 13

FY2024

The Bureau of Technology (BOT) has many key initiatives underway. Below are the areas of focus and strategic initiatives planned for FY2024.

Infrastructure

On the infrastructure side, BOT is working on Identity and Access Management, generative AI solutions, asset management streamlining efforts, infrastructure consolidation, implementation of BOT's hosting strategy, modernization of Interactive Voice Response (IVR) systems, efficient and modernized application hosting solutions, digital equity, Enterprise Architecture team building/governance, and establishment of business continuity and disaster recovery teams.

Applications

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.

Also in 2024, BOT will work to establish an enterprise-wide executive steering committee governance board for applications, as well as an enterprise-wide IT project portfolio tracking and reporting system that includes project intake.

Cybersecurity

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 Information Security Office (ISO) matured the Information Security Office organization, including resources dedicated to Information System Security Engineering, Supply Chain Risk Management, Data Privacy, and Governance and Risk Management.

In the next two years ISO will focus on operationalizing the Risk Management Framework providing elected offices a full suite of Security Control Assessment capabilities so they can better understand the risk to their information and systems. ISO will also integrate additional Cybersecurity capabilities taking full advantage of the offering provided by the State of Illinois as part of the State and Local Cybersecurity Grant Program, appropriating \$1 billion to be awarded over four years. This initiative will allow the County to integrate new capabilities into the information security tool stack at no direct cost through Aug 2027. This will enhance the County's ability to prevent and rapidly respond to cyber security incidents.

ISO will also continue its close coordination and collaboration with the Cook County Clerk's office in their role as the chief election authority to ensure the Presidential Primary Election (March 19, 2024) and Presidential General Election (November 5, 2024) occur without any cyber related incidents.

Artificial Intelligence and Machine Learning

In 2024, Cook County Government is set to begin exploring a transformative machine learning and artificial intelligence strategy. The county seeks to leverage advanced analytics to bolster decision-making, streamline resource allocation and enhance operational efficiency. The strategy places a strong emphasis on ethical considerations, ensuring the responsible and transparent utilization of AI to uphold privacy and equity standards across all applications. Anticipated uses include translation services, chatbots and other use cases.

Once Cook County has retired its mainframe and mid-range applications, and contracted for 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 our criteria for interoperability, efficiency, safety and return on investment.

Background

Cook County is the second largest county by population. It is home to more than half of the Chicagoland region's population and economic activity. Cook County government plays a pivotal role in serving and supporting the needs of those who live and work here. It is responsible for promoting the health, welfare, and safety of more than five million residents. It manages the nation's largest consolidated court system and single-site jail campus. These objectives are accomplished via 10 separately elected Cook County offices and other appointed and independent agencies. Among the elected offices are the 17 Cook County Board of Commissioners, Board President, Assessor, Clerk of the Circuit Court, Cook County Clerk, over 400 Circuit Court Judges, Sheriff, State's Attorney, three Board of Review Commissioners and Treasurer. The offices under appointed leadership include Cook County Health, Forest Preserves District, Cook County Landbank and Public Defender.

Cook County has a shared-services IT governance model. This allows for the elected offices to exercise autonomy over their individual IT decisions while leveraging the benefits of procuring services and hardware via enterprise-wide contracts. Cook County's hybrid approach allows for flexibility and cost efficiency.

The Bureau of Technology (BOT) operates a centralized IT help desk used by several elected offices as well as Offices Under the President (OUP). Pursuant to Cook County Ordinance No. 18-5634, BOT manages a Countywide Service Desk that provides Tier 1, or basic, help desk services Countywide. Pursuant to Cook County Ordinance No. 14-1481, BOT is also responsible for creating security standards and policies through the Information Security Working Group which includes representatives of each separately elected office. Additionally, BOT is responsible for Countywide network service and maintenance, and telecommunications. Beyond this role in Countywide operations, BOT provides all IT support for Offices Under the Cook County Board President.

BOT manages enterprise-wide contracts such as the Microsoft contract for the County email system for many elected or otherwise separate offices, except for:

- Cook County Health
- Sheriff
- State's Attorney
- Treasurer

BOT provides computing equipment such as laptops, desktops and peripheral devices for:

- Offices Under the President
- Board of Review
- Land Bank
- Public Administrator
- Public Defender

BOT provides or supports all servers for:

- Board of Review
- Forest Preserves
- Offices Under the President
- Public Defender

BOT provides some server support for:

- Assessor
- Chief Judge
- County Clerk
- State's Attorney
- Treasurer

BOT supports a time and attendance system with biometric timeclocks for all agencies. BOT supports an Enterprise Resource Planning (ERP) System that covers some or all aspects of ERP services for all agencies.

In FY2024, BOT plans to create a service catalog with Service Level Agreements (SLAs) for each service BOT supports.

Mission

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

- Life cycle 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 term 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 continue supporting and maintaining applications, platforms, etc.
- **Transparency:** using public-facing technology to provide insight into Cook County operations and initiatives
- **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 Cook County IT
- **Reuse before buy:** this is a common principle of IT architecture that means that reusing existing solutions will be considered before considering the purchase of a new alternative, 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 custom built in-house, which provides for lower maintenance costs, better performance and less need for staff with very specialized technical expertise

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 — Handles enterprise systems in areas including Financials, Budget, Supply Chain, Purchasing, Inventory, Human Resources, Benefits, Payroll and Performance Management.

Geographic Information Systems — 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.

Project 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 Offices Under the 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 and policy for 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 audiovisual 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.

Identity and Access Management — Provides Identity and Access Management to manage and secure the online identities of residents when they access online services provided to the public.

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.

IT Governance

Bringing sustainable and transformative technologies to bear on Cook County operations is always a key priority. Through investments in new applications and infrastructure, Cook County continues its transition away from paper-centric business processes and further into the digital realm. BOT manages Cook County's enterprise IT strategy and transforms the policies listed above into actions in several ways.

CIO Roundtable

BOT's Chief Information Officer chairs a monthly CIO Roundtable meeting in which IT leaders from each of Cook County's separately elected offices and other entities, such as Cook County Health, with varying degrees of IT autonomy, come together to discuss pertinent issues and find opportunities for interoperability or shared services.

Change Approval Board (CAB)

BOT's Chief Technology Officer holds a weekly IT Change Management meeting with the IT Change Approval Board in which IT representatives from each of Cook County's separately elected offices and other entities come together to discuss changes to the IT systems which could potentially impact enterprise-wide shared services and ensure responsible agencies have approved and all stakeholders are informed.

Information Security Working Group (ISWG)

In addition, the Bureau of Technology's Chief Information Security Officer chairs the Information Security Working Group (ISWG) which meets monthly to discuss cybersecurity threats, policies and standards.

Cybersecurity plays an important role in any mature IT organization. Cook County needs to be prepared for the entire spectrum of potential threats because data is now accessible around the clock from anywhere in the world. Beyond the technical considerations of cybersecurity, Cook County must further integrate cybersecurity strategies into the governance, engineering and management of its operations. Governance is key to increasing collaboration and shared services across the County.

On June 18, 2014, the Cook County Board of Commissioners passed the Cook County Information Security Ordinance, Ord. 14-1481. The Ordinance requires that all separately elected County and State

officials, departments, office institutions or agencies funded by the Board of Commissioners take the appropriate precautions to protect the integrity and confidentiality of information.

The ordinance mandated the creation of an Information Security Working Group (ISWG) with representation from each elected office. The ISWG assists the Cook County Chief Information Security Officer (CISO) in creating, and updating as necessary, a comprehensive and written Information Security Framework.

BOT's goal is to continue to mature the information security program at Cook County and fulfil the mandates set forth in the Cook County Information Security Ordinance so that all Cook County information systems continue to provide the level of service Cook County residents require and deserve.

Purchasing

Cook County's Procurement Code also allows the Office of the Chief Procurement Officer (OCPO) to require BOT to concur on all IT procurements. Types of IT procurements requiring BOT concurrence include new vendor contracts procured via sole source, RFP, RFQ, or by reference to another government entity's competitively bid contract (also known as a "piggyback contract"); increases, extensions and amendments to existing vendor contracts; task orders obtained through target market or non-target market master consulting agreements; and statements of work (SOW) for professional services obtained through BOT's Countywide software/hardware reseller agreements.

BOT's considerations for concurrences include impact on BOT operations and resources (e.g. help desk support), content of RFP/Task Order (e.g. IT language and execution), content of proposed IT contracts (e.g. SOW, License Agreements), and other considerations such as sole-source justification and security issues.

Funding for new system developments and enhancements remains limited, and choices will be made based on competing business priorities. Whenever possible, BOT will avoid customizing systems, which may mean adapting business processes to the out-of-the-box features of selected software. BOT avoids technology for technology's sake by examining whether technology will offer an operational improvement significant enough to justify the expense.

Hosting and Disaster Recovery

Collaborative Countywide infrastructure modernization efforts are long-term, expensive investments, but they are mission critical. BOT has adopted a cloud-smart strategy, meaning that we consider remotely hosted cloud solutions first when developing a new procurement plan for a particular system. For systems from all the offices, agencies and departments across Cook County that will remain on-premise for the foreseeable future, BOT is focused on modernizing and consolidating the hosting environment to improve performance and efficiency. To enable this goal, BOT developed a hybrid hosting strategy and has published an RFP for IT infrastructure consolidation to consolidate and migrate to either co-location data centers or the cloud.

Offices Under the President Policy Roadmap

The Cook County Policy Roadmap for OUP has been developed by the Office of the President of the Cook County Board of Commissioners to guide the Bureaus and Departments under the President through the coming years. The Policy Roadmap and additional information about Cook County's overall strategy are available on the Cook County 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 "Connected Communities" and "Open Communities" domains.

Modernization

Choosing innovative software and hardware that provides sound returns on investment is a cornerstone of the County's modernization efforts. 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 Cook County through BOT's modernization efforts.

Application Modernization

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 ever increasing levels of work to maintain as they get older. To operate as efficiently as possible, BOT has adopted a model where its preference is to purchase applications "commercial-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 year. 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 (IPTS) 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 Modernization

Information technology infrastructure includes hardware such as computers, servers, switches, and routers, as well as the facilities that house them. BOT supports 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 locations.

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. As part of the infrastructure modernization efforts, BOT has also developed an internal cloud infrastructure available for OUP and other elected offices; this effort has enabled retiring legacy infrastructure.

Digital Equity

OUP is continuously working to expand residents' access to Cook 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 Cook 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.

Data Strategy, Governance and Analytics

The Cook County Bureau of Technology's Data Strategy, Governance and Analytics team is building its vision of a dynamic and interconnected data ecosystem that serves as the backbone of informed decision-making across all departments within OUP. The vision is centered on creating a seamless flow of integrated data that empowers our teams to uncover insights, respond proactively to challenges and seize opportunities. By fostering a cohesive data environment, Data aims to catalyze innovation, enhance operational efficiencies and ultimately elevate the quality of services we deliver to our constituents. This vision reflects our commitment to harnessing the power of data as a transformative force in shaping the future of Cook County.

Data Privacy, Security and Accessibility

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 Cook 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. BOT is also leading an Enterprise-wide Business Continuity program development.

Staff Development

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.

Recruitment

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

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 smoothly and efficiently 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

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 Information Security Working Group. These monthly meetings help ensure communication, collaboration and alignment between the various agencies on IT-related issues.