Our Vision

The 2021 IT Strategic Plan upholds the City’s technology vision to fuel inclusion, engagement and innovation from an inside-out perspective. While the City has made great progress towards achieving this technology vision, the City’s modernization efforts continue to be hindered by paper-based processes, aging legacy systems, and a dwindling IT workforce.

This plan is focused on the set of initiatives needed to strengthen the City’s core capabilities with the end result of equitable, responsive technology services for all Chicagoans.
Executive Summary

The City of Chicago has high ambitions for technology, viewing it as a key enabler to fuel inclusion, employee and resident engagement, innovation, and opportunities to improve the quality of life for all Chicagoans.

Over the past year, City staff has leveraged technology to live up to these ambitions by:

- Rapidly pivoting to remote work (within 3 days).
- Expanding online/digital options for government services (e.g., applications for outdoor dining permits, affordable housing applications, permit submissions, etc.).
- Mobilizing census outreach to underserved communities through WiFi equipped vans & iPads.
- Facilitating more equitable services through an improved translation web experience and continued expansion of its modern, robust CHI 311 platform that enables Chicagoans to request City services.

The City also continues to make progress in improving data accessibility and transparency, and building a more sustainable infrastructure, including:

- Publishing 742 datasets on the open data portal comprising business licenses, crime, food inspections, environmental data, etc.
- Migrating enterprise systems and infrastructure such as the City’s call center and mobile device management from legacy, on-premise systems to cloud-based platforms.

While technology advancements are being made, City departments still face significant challenges caused by paper-intensive systems, fragmented data and aging legacy systems. Unless these challenges are addressed through a systematic and structured approach to modernization, technology will be unlikely to live up to its potential for enabling more transparency and citywide equity, improving City operations, reducing costs, and/or increasing revenue. Sub-optimal IT causes a significant drain on City resources as departments “make do” with manual processes and staff struggle to maintain antiquated systems long past their utility, which additionally burden the taxpayers by costing more to maintain. To be successful, the City IT team needs the authority and sponsorship to implement this plan.

The objective of this IT Strategic Plan is to identify the key initiatives and actions needed to address these challenges by improving the City's internal IT-related capabilities to better support City functions. Improving these capabilities will also enable the City to accelerate the digital transformation needed to provide public services equitably to Chicagoans now and in the future.
The City of Chicago is under-resourced to support the technology modernization needed to sustain on-going operations and improve City services for Chicagoans.

- **IT Staffing level is well below peer cities.** Only 75 Central IT staff support the City department needs. When IT staff from other departments are included, 110 IT professionals support all the City’s technology functions. The City’s IT workforce comprises 1.1% of the City employees—a significant variance against other large metropolitan cities whose IT workforce approximates 3.6% of its total employees.

- **The City of Chicago spends most of its IT budget (85.5%) on the City’s operational functions** (e.g., administrative systems such as ERP and billing). 61% of the City’s applications are underpinned by aging or unsustainable technologies and several mission-critical systems are decades old and currently in the retirement phase of their life cycle.

- The expense to maintain these antiquated systems impacts the City’s resources and diverts funding from innovating resident-facing services. As a percentage of IT spend, the City is well behind its peers in growing and investing in emerging technologies that benefit constituents.

This IT Strategic Plan is a call to action to address the aforementioned constraints. The actions are organized into a set of seven (7) integrated goals and related initiatives:

- **Goal 1: Reimagine Workforce and Processes** - Improve the City’s IT management, oversight and Central IT and departmental collaboration

- **Goal 2: Leverage Data to Spur Innovation** - Expand data-sharing and analytics capabilities

- **Goal 3: Transform City Infrastructure** - Modernize applications and infrastructure

- **Goal 4: Put People at the Center** - Make public services digitally-accessible and easier to use by Chicagoans

- **Goal 5: Collaborate to Innovate** - Better leverage external partners to accelerate modernization

- **Goal 6: Empower & Inspire** - Upskill, recruit and retain IT talent

- **Goal 7: Ensure Equity & Accessibility** - Enable equitable access and use of City services through technology

Specific actions to support each goal are provided as separate sections in this plan.
The City must take action to fill long-standing position vacancies and expedite the modernization process to free up City resources to provide Chicagoans the City services they need, seamlessly and equitably.

**Invest in building the capacity and capability of the IT workforce**
- Chicago has a highly tenured IT staff where 32% of the workforce has been with the city for 20 years or more, creating a **significant retirement risk**.
- Moreover, given the size of its IT environment, the City does not have the capacity to adequately manage complex, custom built and aging systems.
- Positions that have remained vacant (or were given-up in the past) have transferred the burden to those in IT who remain, creating **excessive workload**, which has the potential to prompt further turnover, resulting in **loss of institutional knowledge**.
- Increasing the size of the City’s IT workforce to at least fill vacant positions is necessary to prevent further brain drain.
- Developing an **optimal mix of in-house and outsourcing** to ensure City IT skills are complementary to those available from the vendors will provide a risk adjusted and cost-effective solution to close the skills gap in IT.
- Replacing outdated position titles will help attract the IT talent skilled in the modern digital technologies needed by the City.

**Allocate additional** funding to modernize the City’s application portfolio and enable service delivery through digital channels (e.g., web & mobile)

- The application portfolio is comprised of **aging technology**, which not only requires specialized skills to maintain, but also **increases both risk and cost**.
- Several of the apps do not **adequately achieve their business objectives**, resulting in workarounds that create additional drag on resources.
- The modernization of the application portfolio is a **strategic imperative that will take several years to complete**, but work must start now.
- Modernization efforts are estimated at a potential capital spend of $350M - $400M over approximately 8 years (in addition to that being spent today).
- However, **this spend can be reduced and offset** by reinvesting the savings from modernization back into City operations.
Chicago can offset the IT modernization spend and free up funding for the necessary IT Workforce positions by taking a “whole of government” approach. This includes application rationalization, organizational changes, better leveraged use of partners, process improvements and change management, and increased efficiencies through data-sharing and effective use of emerging technology innovations. To be successful IT will require capital investments and executive sponsorship.

IT will need to have the authority, and be seen to have the authority, to drive the needed changes identified in this IT Strategic Plan. The resulting modernization will not only lead to a reduction in IT support cost but also provide many intangible benefits:

- A capital expenditure of an additional $350M - $400M (beyond the planned IT budget) to migrate, retire and rationalize the application portfolio is likely needed. This can save the city $500M+ over 10 years by eliminating and reducing IT support costs.
- An engagement survey of the residents indicated that they are highly likely to use digital channels (web and mobile) to access city services and expect the experience to be as easy as online shopping. Better designed and architected enterprise systems, and increased digital capabilities, will not only lead to increased productivity of the city-wide workforce but also provide easier-to-use, digitally-accessible, and equitably distributed city services.
- Building and strengthening the capabilities of the internal IT staff at the City with well defined organizational structures and strong governance will reduce risk and lead to better utilization of the talent available through IT vendor-partners.
- Strong collaboration with the IT vendor-partners and innovative contracting models can also support the City in this modernization imperative by pooling the resources of the city with those of the vendor-partners while transferring the execution risk to them.
- Expanding integration and data-sharing capabilities across departments and using analytics and other emerging technologies to expand automation opportunities will not only improve operations, but will also provide a more seamless, responsive experience for Chicagoans.

App Modernization will lead to reduced spend on IT support at the City of Chicago

This IT Strategic Plan is a living document. The ideas and initiatives in this plan should be considered as a starting point for accelerating the City’s modernization journey. AIS welcomes the opportunity to collaborate with City stakeholders on implementing the plan while flexibly adjusting it in alignment with the City’s strategic priorities. Subsequent sections provide further details on specific initiatives as well as an execution roadmap.

Source: Migration cost and benefits model, subject to assumptions
OUR GOALS & KEY INITIATIVES

To support the 2021 IT Strategic Plan, necessary investments in time, money and human resources must be made to modernize the City’s mission-critical systems, promote more data-sharing, empower and upskill the IT workforce, and collaborate more effectively with external stakeholders, including residents, the vendor community, educational institutions and others.

In order to facilitate the implementation of these investments, the City has defined a set of goals and key initiatives for execution.

- **Goals** – End results that the City is seeking to achieve. Goals may overlap as needed to achieve the City’s technology vision.

- **Key Initiatives** – Measurable efforts that must be implemented to achieve the stated goals. Internal and external stakeholders across the City will be involved.
Goal 1: Reimagine Workforce & Processes

Overview

Over the past year, City staff has leveraged technology to pivot and adapt to new ways of working. However, the existing organizational structure, increased workload due to covid, and long tenures have likely contributed to a seemingly accelerated loss of critical talent from the City IT organization.

The City should assess the current distribution of workload within IT and determine the optimal mix of in-house and outsourcing. The role of central IT in relation to the IT capabilities in other departments will need to be assessed and formalized so that the lines of responsibility are clear and redundant work is eliminated.

The relationship between central IT and departments will need to be strengthened such that departmental needs are understood by IT and modernization plans communicated with the departments. These initiatives will require executive sponsorship to be successful. IT will need to have the authority and be seen to have the authority to drive the needed changes.

Key Initiatives:
- 1.1 – Relaunch Technology Strategy Group
- 1.2 – Improve & Deploy Citywide IT Operating Model
- 1.3 – Hire Dedicated Business Relationship Managers to Improve Central-IT and Department Collaboration
- 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities
### Goal 1: Reimagine Workforce & Processes

#### Summary Action Plan

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</table>
| 1.1   | Relaunch Technology Strategy Group (TSG) | ▪ Relaunch the TSG to enable executive guidance during implementation of the 2021 Strategic Plan for IT, to provide ongoing guidance on prioritization of IT initiatives, and to help prioritize competing demands on limited IT resources.  
▪ The board should meet periodically (minimum quarterly, but more frequently initially), to help set the pace for modernization.  
▪ The Project and Portfolio Management organization within AIS should help facilitate the TSG meetings. | AIS Comm. (Chair)  
CTO  
Departments  
PMO | Immediate | Low | Ongoing effort | One time: NA |
|       |                |            | HR  
CTO  
AIS Deputy Comm. (s)  
Department IT Leads (where applicable) | Immediate | High | <960 hours | One time: $250k - $500k |
| 1.2   | Improve & Deploy Citywide IT Operating Model | ▪ At 1.1%, the City has far fewer IT staff than comparable city governments – and of the 1.1%, only a relatively small fraction (20%) reside within AIS.  
▪ An IT operating model describes how the City IT capabilities are orchestrated to achieve the strategic objectives in the most efficient manner, while accounting for the unique needs of each department and regulatory constraints.  
▪ Adopting a bimodal (insource and outsource) organization which focuses on business outcomes, with a product management mindset, vendor management capabilities and agile delivery methodologies will strengthen and de-risk IT capabilities at the City.  
▪ Under this initiative, the target state operating model must be designed, an assessment of gaps against the target and organization readiness to change determined, and execution guidelines developed which the city can follow to implement the operating model. | | | | Ongoing: TBD after development of the model |
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| 1.3   | Hire Business Relationship Managers (BRM) to Improve Central-IT and Department Collaboration | ▪ The City should advance beyond the IT Service Committee (ITSC) to develop dedicated business relationship managers who have the business acumen and technical skills to understand the needs of the business and develop the business case for technology investments.  
▪ The organizational structure for BRM will need to be defined so that roles and responsibilities for the BRM for each department and central IT are documented, consistent with the 1.2 IT Operating Model.  
▪ Job specifications must be documented and after necessary approvals are taken, the role filled through new hires and/or transfer of appropriate candidates from elsewhere within the City administration. | Department heads  
▪ CTO  
▪ HR | Short-Term | Medium | <960 hours + ongoing effort  
12 FTEs (with some dedicated to a cluster of small departments, other focused on large ones) | One time: 0–$250k (0 if included with 1.2)  
Ongoing: annual $1M – $2M |
| 1.4   | Mature City’s Change Management and Business Process Improvement Capabilities | ▪ The City does not have the capacity or the capability to manage the changes resulting from the recommended modernization initiatives.  
▪ A Change Management Office must be set-up by the City to oversee and ensure appropriate change management is accounted for throughout the rollout of the future state initiatives with dedicated support for application modernization, Data & Analytics, and talent goals.  
▪ The City continues to use paper-based processes that hinder the ability to realize the benefits from technology modernization.  
▪ When modernizing the applications, care must be taken to rationalize the business processes to achieve the benefits that technology can offer, instead of customizing the applications to fit paper-based processes.  
▪ Maturing internal Business Process improvement capabilities should be formalized and could be incorporated into the Change Management Office. | AIS  
▪ Departments  
▪ Change Management Specialist  
▪ Business Process Engineers | ▪ Short Term for Change Mgmt.  
▪ Medium Term for Business Process reengineering | High | 640 hours + Ongoing 2-4 FTEs (for Change and Business Process to serve as coaches to other departments) | One time: $1M+  
Ongoing: $500k – $1M |
Goal 2: Leverage Data to Spur Innovation

Overview
A core goal of the City is to use data to improve the quality of life for residents and improve the efficiency of City operations. Current initiatives, such as the publication of 742 datasets on the open data portal and WindyGrid, provide more transparency and access to data. To improve operational efficiencies, the City needs to mature capabilities to share data across departments. Without data sharing across City departments, the City risks increased process inefficiencies that slow down the rate of innovation across the City.

Example of City Data & Analytics Capabilities

Key Initiatives:
- 2.1 – Design and Implement Data & Analytics Strategy
- 2.2 – Establish City-Wide Data Governance and Ownership
- 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing
- 2.4 – Deploy Cross-Department Master Data Management Plan
- 2.5 – Define Analytics Use Cases to Increase Business Value from Data
- 2.6 – Establish City-Wide Data Literacy Program
## Goal 2: Leverage Data to Spur Innovation

### Summary Action Plan

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| 2.1   | Design and Implement Data & Analytics Strategy | ▪ Develop a formal cross-departmental data and analytics strategy for improved data access, quality, and governance.  
▪ Assess current capabilities, define vision, and establish Data & Analytics action plan to establish how data and analytics will be delivered across the City (including capabilities, roles, processes, etc.). | ▪ Chief Data Officer  
▪ Information Architect  
▪ Departments | Immediate | Low | < 2920 hours | One time: $250k - $500k  
Ongoing: NA |
| 2.2   | Establish City-Wide Data Governance and Ownership | ▪ Establish a Data & Analytics governance framework to define and enforce cross-departmental Data & Analytics standards and policies (e.g., Data Classification Policy, Data Sharing Policy, Data Sourcing Policy, Data Privacy/Protection Policy, Data Retention Policy, etc.). | ▪ Chief Data Officer  
▪ CISO  
▪ Departments | Short-Term | Low | 4380 hours (to develop target state) | One time: < $250k  
Ongoing: NA |
| 2.3   | Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing | ▪ Establish the enterprise Data & Analytics infrastructure to enable fit-for-purpose intake, storage, process, and access to City data. | ▪ Chief Data Officer  
▪ CISO  
▪ Departments | Short-Term | High | > 4380 hours | One time: $1M+  
Ongoing: annual $250 - $500k |
| 2.4   | Deploy Cross-Department Master Data Management Plan | ▪ Develop department and technology master data requirements and manage master data assets across the end-to-end data lifecycle. | ▪ Chief Data Officer  
▪ Departments | Mid-Term | High | > 4380 hours | One time: $500k - $1M  
Ongoing: annual < $250k |
| 2.5   | Define Analytics Use Cases to Increase Business Value from Data | ▪ Identify and understand cross-departmental use cases to drive value from data.  
▪ Incrementally execute and deploy predictive and prescriptive analytics Minimum Viable Products. | ▪ Chief Data Officer  
▪ Departments | Mid-Term | Low | Ongoing effort | One time: < $250k  
Ongoing: NA |
| 2.6   | Establish City-Wide Data Literacy Program | ▪ Develop a data literacy strategy to mature data understanding and usage across departments.  
▪ Continuously baseline and benchmark data literacy for continuous improvement. | ▪ Chief Data Officer  
▪ Departments | Immediate | Low | < 6570 hours | One time: < $250k  
Ongoing: < $250k annually |
Goal 3: Transform City Infrastructure

Overview

The City has taken steps to modernize its infrastructure through current efforts to migrate to modern platforms (e.g., Chicago 311 on Salesforce). Still, many of the City’s mission-critical systems are supported by aging technologies, and many business capabilities performed without support of technology. 8% of business capabilities account for 54% of application spend while 25% of business capabilities are not supported by any technology. Increasing efforts to replace or migrate applications to more modern, sustainable technologies will assist the City in achieving its goal of providing more equitable services to all Chicagoans.

Initiatives identified for this goal are intended to build upon the City’s current infrastructure improvements. Current technology infrastructure projects include the migration of the City’s call center to a cloud-based platform and the ongoing modernization of the City’s business applications.

Key Initiatives:

- 3.1 – Modernize the City’s Applications and Supporting Technologies
- 3.2 – Strengthen Technology Infrastructure, Integration & Security
Goal 3: Transform City Infrastructure

- Gartner’s TIME Quadrant uses a top-down analysis technique to focus attention on the areas of greatest opportunity.
- It is based on input from business users, technical owners and solution architects and assesses fitness of the application capabilities against a pre-determined set of criteria relevant to each role.
- The resulting Categorizations of Tolerate, Invest, Migrate, and Eliminate enables an organization to move quickly from collecting portfolio data to identifying strategies and action plans.
- Once categorized, exhaustive, bottom-up analysis is still needed for those portions of the portfolio that need active intervention.
- These categorizations should be revisited as budgets, architectures and technologies change.

The initiatives for modernization of the application portfolio follow an interdependent sequence

The TIME methodology is an industry standard application assessment framework developed by Gartner Research.
## Goal 3: Transform City Infrastructure

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</table>
| 3.1   | Modernize the City’s Applications and Supporting Technologies | 3.1.1 Build a Dedicated Application Modernization Project Team | ▪ Identify a dedicated project manager and team to oversee the multi-year application modernization effort.  
▪ Review the applications identified for retirement and modernization in the Current State Assessment with the Technology Strategy Group and City departments in order to confirm the modernization sequence and approach.  
▪ Establish the governance process to define and measure metrics. | AIS  
▪ Technology Strategy Group | Immediate | High | 672 hours + Ongoing 2 – 4 FTEs | One time: NA  
Ongoing: NA |
|       |                | 3.1.2 Improve Application Portfolio Governance | ▪ Leverage the application support vendors to identify the users, access, and other metrics for the portfolio and assign owners.  
▪ Extend the TIME quadrant analysis to the complete application portfolio and develop a disposition.  
▪ Establish the governance process to define and measure ongoing metrics.  
▪ Utilize an iterative governance structure to ensure data is informing modernization and facilitate continuous planning. | AIS | Immediate | Medium | Ongoing | One time: NA  
Ongoing: NA |
|       |                | 3.1.3 Right Size Application Portfolio | ▪ Identify a dedicated project manager and team to oversee the multi-year application modernization effort.  
▪ Review the applications identified for retirement and modernization in the Current State Assessment with the Technology Strategy Group and City departments in order to confirm the modernization sequence and approach. | AIS  
▪ Technology Strategy Group | Immediate | High | 672 hours + Ongoing 2 – 4 FTEs | One time: $500k- $1M  
Ongoing: NA |

Legend (Action Timeframe):
- **Immediate**: Initiate action within 0 to 6 months
- **Short-Term**: Initiate action within 6 to 12 months
- **Mid-Term**: Initiate action within 12 to 18 months
- **Long-Term**: Initiate action after 18 months

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<tr>
<td>3.1</td>
<td>Modernize the City’s Applications and Supporting Technologies</td>
<td></td>
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</tbody>
</table>
| 3.1.4 | Define Cloud Migration Approach & Procure Vendor Support | • Estimate cloud migration activities based on the analysis conducted in 3.1.1.  
• Select and engage a technology, system integration, or managed services provider to help execute cloud migration (as necessary). | AIS  
Procurement Services | Short-Term | High | 672 hours  
2 – 4 FTEs | One time: TBD  
Ongoing: NA |
| 3.1.5 | Create Detailed Plan for Modernization Efforts & Streamline Application Portfolio Over the Long Term | • Migrate City applications to an alternate technical infrastructure (such as cloud) in order to remediate underlying technical performance issues.  
• Conduct regression testing to confirm that application functionality has not been adversely impacted.  
• Use an agile approach to enable the City to continually rationalize (i.e., streamline) its application portfolio by incrementally retiring applications that provide little business value (see Current State Assessment findings for initial list). This is a critical step in order to help maximize cost savings from the modernization efforts. | AIS  
Departments | Mid-Term | Medium | Approx. 700 hours per application | One time:  
$750k-$2M  
(Cloud Migration Support)  
Ongoing: 15-20% of Implementation Cost |
## Goal 3: Transform City Infrastructure

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<tbody>
<tr>
<td>3.2</td>
<td><strong>Strengthen Technology Infrastructure, Integration &amp; Security</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1</td>
<td>Develop a detailed Hybrid Multi-Cloud Infrastructure Implementation Approach</td>
<td></td>
<td>AIS</td>
<td>Mid-Term</td>
<td>Medium</td>
<td>480 hours</td>
<td>One time: $250k-$500k</td>
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<tr>
<td></td>
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<td></td>
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<td>Ongoing: NA</td>
</tr>
</tbody>
</table>

**Legend (Action Timeframe):**
- **Immediate:** Initiate action within 0 to 6 months
- **Short-Term:** Initiate action within 6 to 12 months
- **Mid-Term:** Initiate action within 12 to 18 months
- **Long-Term:** Initiate action after 18 months
Goal 4: Put People at the Center

Overview
The City of Chicago has invested in new technologies to increase its connection to residents and businesses and to better understand their needs. For example, the City implemented virtual town halls, conducted online surveys with Chicagoans, facilitated extensive focus groups in designing CHI 311, and leveraged communication management tools to keep a pulse on public sentiment.

Examples of City Communications Management Capabilities

PUTTING PEOPLE AT THE CENTER

Communications Management
- Social Media Management
  - Real-time, geographic-based monitoring
  - Social Insights
    - Trend analysis, events, and more
- Public Awareness
  - Broad communications, text
- Automated Communications
  - Keep hot topics and need to know information readily accessible
  - Flag Social Posts
  - Follow-up or case creation

Summary of Community Engagement Methods for CHI 311

<table>
<thead>
<tr>
<th>Community Engagement Method</th>
<th>Online</th>
<th>Community Meetings</th>
<th>Print Materials</th>
<th>Blogs</th>
<th>User Testing</th>
<th>Presentation</th>
<th>CAS</th>
<th>Community Mapping</th>
<th>Post Cards from the Future</th>
<th>Email Responses</th>
<th>Promotional Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
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<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
</tr>
<tr>
<td>Resident Engagement</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
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<td>✮</td>
</tr>
<tr>
<td>Community Meeting</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
<td>✮</td>
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</table>

The purpose of this initiative is to continue to enhance the City’s capabilities to design and develop digitally-accessible, easy to use public services for Chicagoans. This enhances self-service and enables residents and businesses to complete more transactions over the web and through mobile devices.

Key Initiatives:
- 4.1 – Build a Digital Services Team
- 4.2 – Develop a Playbook for Delivery
- 4.2 – Use Resident Feedback to Prioritize Digital Services
- 4.3 – Incrementally Deliver Services (Platform Approach)
## 2021 IT Strategic Plan

### Goal 4: Put People at the Center

#### Summary Action Plan

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<tbody>
<tr>
<td>4.1</td>
<td>Build a Digital Services Team</td>
<td>▪ Plan and implement recruiting efforts. Peer organizations have established teams that include user experience (UX) designers, customer experience specialists, web developers, content managers, and product managers. Other governments have built their in-house team over time by obtaining vendor services or bringing in IT professionals for 1-to-2-year stints (i.e., tours of civic duty).</td>
<td>AIS, HR</td>
<td>Immediate (for team lead)</td>
<td>Medium</td>
<td>960 hours (to build up an entire team over time)</td>
<td>One time: NA</td>
</tr>
<tr>
<td>4.2</td>
<td>Develop a Playbook for Delivery</td>
<td>▪ Develop a playbook that defines the standards, tools, platforms, delivery methods, and software development practices for designing and implementing public services delivered through digital channels. (Example playbooks are provided in the implementation details section.)</td>
<td>AIS, Technology Strategy Group</td>
<td>Mid-Term</td>
<td>Medium</td>
<td>320 hours (initial draft)</td>
<td>One time: No Cost - $150k (could use non-profit support)</td>
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* These FTEs will be members of the Digital Services Team to be built as part of Initiative 4.1.
<table>
<thead>
<tr>
<th>Ref #</th>
<th>Key Activities</th>
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<th>Estimated City Hours</th>
<th>Estimated External Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3</td>
<td>Use Resident Feedback to Prioritize Digital Services</td>
<td>▪ Leverage communication tools, surveys, and town halls to identify priorities for digital services from the residents’ perspective.</td>
<td>AIS</td>
<td>Short-Term</td>
<td>Medium</td>
<td>Ongoing 1 - 2 FTEs*</td>
<td>One time: $150k - $200k (initial start up assistance, such as market research)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>▪ Conduct field research and journey mapping to determine pain points and scope for future state solutions. For example, City departments identified a resident portal as a potential future state solution. This initiative would help validate this vision with the residents. (An example of a resident portal is provided in the implementation section.)</td>
<td></td>
<td></td>
<td></td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Incrementally Deliver Public Services (Platform Approach)</td>
<td>▪ Implement digital services by referencing the playbook for guidance and using Salesforce as the development platform instead of creating independent point solutions. This minimizes application sprawl and improves the sustainability of the City’s IT footprint given that the City has already invested in Salesforce as its platform for CHI 311.</td>
<td>AIS, Departments</td>
<td>Long-Term</td>
<td>High</td>
<td>Ongoing 10 - 15 FTEs*</td>
<td>One time: Varies based on prioritized digital services</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annually</td>
<td>Ongoing: annually $5M - $10M</td>
</tr>
</tbody>
</table>

* These FTEs will be members of the Digital Services Team to be built as part of Initiative 4.1.
Goal 5: Collaborate to Innovate with External Partners

Overview

The City leverages vendors to help mitigate its shortage of IT talent and obtain the resources it needs to develop / maintain applications and support its technology infrastructure.

The City spends over 50% of its IT budget on Outsourcing and Public Cloud. This is higher than the percentage allocated by other cities.

The City relies heavily on vendors to implement IT projects (i.e., 48% of the IT projects completed or in progress from 2017 through 2020 include services provided by external partners).

The City seeks options for increasing the value it receives from outsourcing and securing the vendor services needed to support enterprise-wide modernization efforts. This entails implementing the following initiatives:

- 5.1 – Identify Vendor Services Needed to Support Modernization
- 5.2 – Prioritize and Define Scope for Vendor Services
- 5.3 – Implement the Necessary Procurement Processes
## Goal 5: Collaborate to Innovate with External Partners
### Summary Action Plan

<table>
<thead>
<tr>
<th>Ref #</th>
<th>Key Activities</th>
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<th>Estimated External Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Identify Vendor Services Needed to Support Modernization</td>
<td>▪ Identify and compile a list of the vendor services needed to support Goals 2 and 3. For example, the initiatives identified in these goals include activities such as the definition of a data governance framework and a cloud migration strategy. The City needs to determine if it requires vendor support for these efforts.</td>
<td>▪ AIS ▪ Technology Strategy Group</td>
<td>Short-Term</td>
<td>Medium</td>
<td>320 hours</td>
<td>One time: NA</td>
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<td></td>
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<td>Ongoing: NA</td>
</tr>
<tr>
<td>5.2</td>
<td>Prioritize and Define Scope for Vendor Services</td>
<td>▪ Share the analysis completed in 5.1 with City Departments. Work with them to prioritize the vendor services to be obtained based on their business needs and the operational risks from aging legacy systems.</td>
<td>▪ AIS ▪ Technology Strategy Group ▪ Departments</td>
<td>Short-Term</td>
<td>Medium</td>
<td>320 hours</td>
<td>One time: NA</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Ongoing: NA</td>
</tr>
<tr>
<td>5.3</td>
<td>Procure Necessary Services</td>
<td>Once 5.1 and 5.2 are completed, the City must identify and implement the appropriate procurement processes for obtaining the vendor services. These processes could include; facilitating Industry Day Workshops, issuing task orders for certified vendors, and/or releasing Requests for Information (RFI) or Requests for Proposal (RFP). The City should also consider agile procurement practices leveraged by other governments.</td>
<td>▪ Industry Day Workshops: This method could be used to inform the vendor community of the modernization efforts that are planned and advise them to await future solicitations.</td>
<td>Procurement Services</td>
<td>Short-Term</td>
<td>Low</td>
<td>80 hours (per event)</td>
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<td>Ongoing: NA</td>
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<td>▪ Task Orders: This method could be used to solicit services from vendor already certified by the City. This can be a faster approach for securing vendor service for engagements with a narrow scope and targeted set of deliverables (e.g., cloud migration strategy).</td>
<td>▪ AIS ▪ Technology Strategy Group ▪ Procurement Services</td>
<td>Mid-Term</td>
<td>Medium</td>
<td>160 hours (per Task Order)</td>
<td>One time: NA</td>
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<td></td>
<td>Ongoing: NA</td>
</tr>
</tbody>
</table>

Legend (Action Timeframe):
- **Immediate**: Initiate action within 0 to 6 months
- **Short-Term**: Initiate action within 6 to 12 months
- **Mid-Term**: Initiate action within 12 to 18 months
- **Long-Term**: Initiate action after 18 months
<table>
<thead>
<tr>
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<tr>
<td>5.3</td>
<td>Procure Necessary Services (continued)</td>
<td>▪ Request for Information (RFI): This method could be used to solicit solution ideas from vendors in response to a broad set of requirements. The results from the RFI could help the City develop the requirements to include in an RFP. ▪ The City can also consider leveraging RFI hybrid (such as the RFI2 from the State of California as an agile procurement option).</td>
<td>AIS, Technology Strategy Group, Procurement Services, Department of Law, Office of Budget Management, Departments</td>
<td>Mid-Term</td>
<td>Medium</td>
<td>480 hours (per solicitation)</td>
<td>One time: $150k - $250k (depending upon scope of solicitation)</td>
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<td>▪ Request for Proposal (RFP): This method could be used to solicit cost and effort from the vendor community in response to specific requirements. ▪ The City should determine creative means for improving collaboration with its IT vendor-partners through innovative contracting models and outcome-based contracting. ▪ When developing an RFP for obtaining long-term vendor services (e.g., outsourcing re-bid), some organizations are seeking broader services beyond technical support, such as: process improvement through automation, expanded business intelligence, and an enhanced customer experience. ▪ Other organizations are seeking increased vendor investments, such as: innovation fund matching, local jobs and apprenticeships, and the funding of new major initiatives. ▪ All the aforementioned options could be considered by Chicago in order to increase the value derived from outsourcing or long-term support contracts.</td>
<td>AIS, Technology Strategy Group, Procurement Services, Department of Law, Office of Budget Management, Departments</td>
<td>Long-Term</td>
<td>High To Very High (e.g., Outsourcing Re-Bid RFP)</td>
<td>640 hours to 1600 hours (per solicitation)</td>
<td>One time: $300k - $800k (depending upon scope of solicitation)</td>
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</tbody>
</table>

Legend (Action Timeframe):
- **Immediate**: Initiate action within 0 to 6 months
- **Short-Term**: Initiate action within 6 to 12 months
- **Mid-Term**: Initiate action within 12 to 18 months
- **Long-Term**: Initiate action after 18 months
Overview
IT at the City of Chicago is under-staffed compared to peer governments and overall IT skills proficiency is slightly behind peers. This situation is further exacerbated by a high retirement risk (32% of staff have a 20+ year tenure) and the City’s inability to recruit and retain employees due to outdated position titles that are misaligned with market competitive titles and compensation.

To address these concern areas, the City has identified the following key initiatives:

- 6.1 – Refresh Position Titles to Support the City’s IT Modernization Initiatives
- 6.2 – Fill High Priority IT Lead / Staff Positions
- 6.3 – Update IT Training Program to Address Skills Gaps
- 6.4 – Establish Succession Plan to Mitigate Retirement Risks
## Goal 6: Empower & Inspire a Capable and Engaged Workforce

### Summary Action Plan

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</table>
| 6.1   | Refresh Position Titles to Support the City’s IT Modernization Initiatives*     | ▪ Establish “job families” to group similar position titles together and create standardized career paths in accordance with civic service rules, classifications, and compensation.  
▪ Create job descriptions for each new role, using market-available samples.  
▪ Compare the new position titles with the services delivered by outsourcing vendors and other IT service providers in order to minimize redundancies. | ▪ HR  
▪ OBM  
▪ AIS | Immediate | Medium | 640 hours | One time: $100k - $200k (compensation analysis)  
One time: NA  
Ongoing: NA |
| 6.2   | Recruit High Priority IT Lead / Staff Positions*                               | ▪ Post positions on premium sites that attract IT professionals and conduct the recruiting process.                                                                                                           | ▪ HR  
▪ AIS | Immediate | Medium | 1,600 hours (to fill vacancies over time) | One time: NA  
One time: NA  
Ongoing: NA |
| 6.3   | Update IT Training Program to Address Skills Gaps                             | ▪ Finalize the training curriculum based on the skill sets needed to support current and future IT projects. Skill sets identified during the Current State Assessment include; cloud, mobile design, and user experience design.  
▪ Identify and hire suppliers/vendors to conduct training. Learning platforms may include the City’s learning management system, LinkedIn learning, an internal learning academy, etc.).  
▪ Reinforce and build upon the vendor-delivered training programs by sharing materials informally through collaboratives, such as AIS’ Training HIVE. | ▪ AIS  
▪ HR | Short-Term | Medium | 320 hours | One time: $100k - $200k (training delivery)  
Ongoing: $50k - $100k ongoing training |

* Initiatives 6.1 and 6.2 should be completed in coordination with each other.
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<tbody>
<tr>
<td>6.4</td>
<td>Establish Succession Plan to Mitigate Retirement Risks</td>
<td>▪ Design and implement a succession planning program to identify and prioritize back-fill needs and upskill potential candidates. (The succession plan developed and being implemented by Los Angeles County is provided as an example for the City to consider.)</td>
<td>AIS, HR</td>
<td>Mid-Term</td>
<td>Medium</td>
<td>960 hours</td>
<td>One time: $200k - $300k (succession program design)</td>
</tr>
</tbody>
</table>

* Initiatives 6.1 and 6.3 should be completed in coordination with each other.
Goal 7: Ensure Equity & Accessibility

Overview

Equity can be accelerated when the benefits from technology are realized for all Chicagoans. To this end, the City is participating in the National Telecommunications and Information Administration’s Broadband USA to increase broadband internet access across underserved neighborhoods. It also adheres to Web Content Accessibility Guidelines (WCAG) 2.0, offers real-time translation services to make the City’s website and other sites more accessible to a wider range of people, and has provided opportunities for technology learning through Chicago public libraries’ programming and My CHI My Future.

Resident Technology Engagement Survey

The City has embarked on a resident IT engagement survey to assess technology usage across socio-economic factors. The purpose of this initiative is to leverage the findings from the initial survey to inform the definition of digital equity metrics and their ongoing measurement as part of the planned modernization efforts.

At the time this IT Strategic Plan has been drafted, the project team has received 2,500+ survey responses from Chicagoans. Based on the preliminary findings, there is minimum variance in the access of City services through digital channels across Chicago’s neighborhoods. The team is also discovering that residents from under invested neighborhoods, such as Austin, Brighton Park, Chatham, Lower West Side, and Oakwood, have a higher usage of City services by using a mobile device to access the City’s website and slightly higher usage of technology in a public location (e.g., library, alderman’s office).

Additionally, 46% of the residents from the under invested neighborhoods desire a seamless digital experience. 32% of these residents indicate that the highest barrier to increasing the use of City services through digital channels is insufficient information and that the information provided by the City is too complex.

Contd. …
Goal 7: Ensure Equity & Accessibility

With improved awareness and easier to understand communication, digital technologies can be a strong medium for the City to deliver public services and have those services equitably accessed and used across all neighborhoods.

Initiatives identified include:

- 7.1 – Extend Accessibility Standards and Multi-Lingual Capabilities
- 7.2 – Define Digital Equity Targets & Metrics
- 7.3 – Apply Digital Equity Metrics to Modernization Initiatives

A full set of analyses and recommendations are being drafted and will be provided as a separate report.
# Goal 7: Ensure Equity & Accessibility

## Summary Action Plan

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<tbody>
<tr>
<td>7.1</td>
<td>Extend Accessibility Standards and Multi-Lingual Capabilities</td>
<td>Residents from under invested neighborhoods cite the City’s website as its preferred method for accessing City services (either through a computer or smart phone). Continuing to improve and extend the City’s efforts in ensuring accessibility and providing multi-lingual capabilities appears to be an effective means in reaching residents and expanding their usage of City services.</td>
<td>AIS</td>
<td>Short-Term</td>
<td>Medium</td>
<td>1 FTE</td>
<td>Ongoing: N/A</td>
</tr>
<tr>
<td>7.2</td>
<td>Define Digital Equity Targets &amp; Metrics</td>
<td>▪ Analyze resident engagement survey outcomes and share the outcomes with City stakeholders. ▪ Work with the Office of Equity and Racial Justice to define Digital Equity metrics (e.g., target increase in usage of specific City services).</td>
<td>AIS, Office of Equity and Racial Justice, Mayor’s Office</td>
<td>Immediate</td>
<td>Medium</td>
<td>320 hours</td>
<td>Ongoing: N/A</td>
</tr>
<tr>
<td>7.3</td>
<td>Apply Digital Equity Metrics to Modernization Initiatives</td>
<td>▪ Work with City stakeholders to define an action plan for applying the defined metrics to modernization initiatives. ▪ This action plan includes defining KPIs to be achieved through the implementation of City systems and planning / implementing resident-facing outreach and workshops to co-design City services that incorporate digital technologies (e.g., use of multi-lingual chatbots for answering questions, facial authentication to make applications easier to submit over a mobile phone, etc.).</td>
<td>AIS, Office of Equity and Racial Justice, Mayor’s Office, Chief Data Officer</td>
<td>Short-Term</td>
<td>Medium</td>
<td>Ongoing</td>
<td>Ongoing: N/A</td>
</tr>
</tbody>
</table>
2. How was the plan developed?

3. How will this plan benefit the City?

4. How will the plan benefit departments & employees?

5. What happens next?
The objective of the City of Chicago IT Strategic Plan is to provide the City with an actionable roadmap for better leveraging technology to improve operational efficiencies and build internal capabilities for delivering equitable public services to Chicagoans.

The delivered insights include:

- Diagnostics and peer benchmarking to provide an assessment of the current state of the City’s information technology resources, processes, applications, and capability gaps.
- Identified opportunities to reduce risk, lower operational costs, secure City data, and design/develop digital public services that equitably serve all Chicagoans.
- Methods for optimizing the City’s application portfolio and improving IT service delivery overall.
- Recommendations for expanding the skill sets and capabilities of City’s IT workforce.

About the IT Strategic Plan

1. What is the purpose of the IT Strategic Plan?
2. How was the plan developed?
3. How will this plan benefit the City?
4. How will the plan benefit departments & employees?
5. What happens next?
The IT Strategic plan was developed over two phases.

**Phase 1: Current State Assessment**
- Stakeholder Interviews: Met with 30+ representatives across all City departments
- Peer Benchmarking & Diagnostics: Conducted detailed data collection and benchmarked the City's current status vs. peer governments – with a particular focus on:
  - IT Spend
  - Skill Sets
  - Application Portfolio
- Research: Applied research and best practices from Gartner’s extensive research and case studies repository

**Phase 2: IT Strategy & Roadmap Development**
- Key Initiatives Development: Categorized the improvement opportunities into a set of initiatives that support the City’s goals for operational effectiveness and equitable services
- Strategy and Roadmap Development: Compiled the initiatives into an over-arching strategy and associated implementation details
1. What is the purpose of the IT Strategic Plan?

2. How was the plan developed?

3. How will this plan benefit the City?

4. How will the plan benefit departments & employees?

5. What happens next?

BENEFITS TO THE CITY

The plan provides implementation guidance for enabling the City to improve its capabilities for:

- Designing / developing easier-to-use and accessible digital City services.
- Providing more equitable service delivery and responsiveness.
- Expanding opportunities for businesses, residents, and others to co-create solutions with the City (e.g., open data, open-source projects).
- Increasing trust within the City due to improved data security and protections.
**Goals & Key Initiatives**

1. What is the purpose of the IT Strategic Plan?
2. How was the plan developed?
3. How will this plan benefit the City?
4. How will the plan benefit departments & employees?
5. What happens next?

**About the IT Strategic Plan**

The plan provides implementation guidance for enabling the City to improve its capabilities for:

- “Doing more with less” due to more cost-effective IT investments.
- Optimizing core IT management processes.
- Improving data-sharing across departments.
- Expanding technology-related skill sets / capabilities for City staff.
- Reducing risks related to aging systems and staff attrition and retirement.
- Better leverage resources and skills provided by external partners, including the City’s current outsourcing partners and IT service providers.
1. What is the purpose of the IT Strategic Plan?

2. How was the plan developed?

3. How will this plan benefit the City?

4. How will the plan benefit departments & employees?

5. What happens next?

NEXT STEPS

The IT Strategic Plan and the associated implementation details will be shared across City department leaders, City Council, City employees, and with external partners.

A calendar outlining communication processes, implementation steps and potential departmental impacts will be developed and shared with City leadership.
Successful implementation of the 2021 IT Strategic Plan will be critical to the City achieving its modernization goals.

In order to facilitate the implementation of these investments, the City has defined a set of goals and key initiatives for execution.

**Goals** – End results that the City is seeking to achieve. Goals may overlap as needed to achieve the City’s technology vision.

**Key Initiatives** – Measurable efforts that must be implemented to achieve the stated goals. Internal and external stakeholders across the City will be involved.
### 1.0 Reimagine Workforce & Processes

1.1 Relaunch Technology Strategy Group (TSG)

1.2 Improve & Deploy Citywide IT Operating Model

1.3 Hire Business Relationship Managers (BRM) to Improve Central-IT and Department Collaboration

1.4 Mature City’s Change Management and Business Process Improvement Capabilities

### 2.0 Leverage Data to Spur Innovation

2.1 Design and Implement Data & Analytics Strategy

2.2 Establish City-Wide Data Governance and Ownership

2.3 Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing

2.4 Deploy Cross-Department Master Data Management Plan

2.5 Define Analytics Use Cases to Increase Business Value from Data

2.6 Establish City-Wide Data Literacy Program
# 2021 IT Strategic Plan

## Goal 3

### 3.0 Transform City Infrastructure

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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</thead>
<tbody>
<tr>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
</tbody>
</table>

#### 3.1 Modernize the City’s Applications and Supporting Technologies

- **3.1.1 Build a Dedicated Application Modernization Project Team**
- **3.1.2 Improve Application Portfolio Governance**
- **3.1.3 Right Size Application Portfolio**
  - 3.1.3.1 Implement Modernization Group 1 (Rehost)
  - 3.1.3.2 Implement Modernization Group 2 (Revise)
  - 3.1.3.3 Implement Modernization Group 3 (Re-Architect)
  - 3.1.3.4 Implement Modernization Group 4 (Replace)
  - 3.1.3.5 Implement Modernization Group 5 (Continuous)
- **3.1.4 Define Cloud Migration Approach & Procure Vendor Support**
- **3.1.5 Create Detailed Plan for Modernization Efforts & Streamline Application Portfolio Over the Long Term**

#### 3.2 Technology Infrastructure, Integration & Security

- **3.2.1 Develop A Detailed Hybrid Multi-Cloud Infrastructure Approach**

---

#### Legend

- **Priority/ Quick Win**
- **Standard Initiative**
- **Ongoing**
### Implementation Roadmap

#### Goals 4 & 5

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 Q4 Q1</td>
<td>Q2 Q3 Q4 Q1 Q2 Q3</td>
<td>Q4 Q1 Q2 Q3 Q4 2025 2026 2027 2028 2029 2030</td>
</tr>
</tbody>
</table>

#### 4.0 Put People at the Center

- **4.1 Build a Digital Services Team***
- **4.2 Develop a Playbook for Delivery**
- **4.3 Use Resident Feedback to Prioritize Digital Services**
- **4.4 Incrementally Deliver Public Services (Platform Approach)**

#### 5.0 Collaborate to Innovate

- **5.1 Identify Vendor Services Needed to Support Modernization**
- **5.2 Prioritize and Define Scope for Vendor Services**
- **5.3 Procure Necessary Procurement Services**

*Phase 1 is focused on finding a lead for the team*

---

*Legend:*
- **Priority/ Quick Win**
- **Standard Initiative**
- **Ongoing**
### 6.0 Empower & Inspire

<table>
<thead>
<tr>
<th>Goal</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Refresh Position Titles to Support the City’s IT Modernization Initiatives*</td>
<td>Q3</td>
<td>Q4</td>
<td>Q4</td>
</tr>
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* Initiatives 6.1 and 6.2 should be completed in coordination with each other.

### 7.0 Ensure Equity & Accessibility

<table>
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Legend:
- **Priority/ Quick Win**
- **Standard Initiative**
- **Ongoing**
### 2021 IT Strategic Plan

#### Phase 1

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Priority/ Quick Win</th>
<th>Standard Initiative</th>
<th>Ongoing</th>
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<tbody>
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<td><strong>1.0 Reimagine Workforce &amp; Processes</strong></td>
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<tr>
<td><strong>2.0 Leverage Data to Spur Innovation</strong></td>
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<tr>
<td>2.1 Design and Implement Data &amp; Analytics Strategy</td>
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<td>2.2 Establish City-Wide Data Governance and Ownership</td>
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<td>2.6 Establish City-Wide Data Literacy Program</td>
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<td><strong>3.0 Transform City Infrastructure</strong></td>
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<td>3.1.1 Build a Dedicated Application Modernization Project Team</td>
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<td>3.1.2 Improve Application Portfolio Governance</td>
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<td>3.1.3 Right Size Application Portfolio</td>
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<td>3.1.3.1 Implement Modernization Group 1 (Rehost)</td>
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<td>3.1.3.2 Implement Modernization Group 2 (Revise)</td>
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<td>3.1.3.3 Implement Modernization Group 3 (Re-Architect)</td>
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<td>3.1.3.4 Implement Modernization Group 4 (Replace)</td>
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<td>3.1.3.5 Implement Modernization Group 5 (Continuous)</td>
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<td>3.1.5 Create Detailed Plan for Modernization Efforts</td>
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<td><strong>4.0 Put People at the Center</strong></td>
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<td>4.1 Build a Digital Services Team*</td>
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<td><strong>6.0 Empower &amp; Inspire</strong></td>
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<td>6.1 Refresh Position Titles to Support the City’s IT Modernization Initiatives</td>
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<td><strong>7.0 Ensure Equity &amp; Accessibility</strong></td>
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<td>7.1 Extend Accessibility Standards and Multi-Lingual Capabilities</td>
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*Phase 1 is focused on finding a lead for the team*
## 2021 IT Strategic Plan
### Implementation Roadmap

#### Phase 2 Initiatives (1 of 2)

<table>
<thead>
<tr>
<th>Phase 2</th>
<th>Q2</th>
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<tr>
<td><strong>1.0 Reimagine Workforce &amp; Processes</strong></td>
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<td>1.3 Hire Business Relationship Managers (BRM) to Improve Central-IT and Department Collaboration</td>
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<td>1.4 Mature City’s Change Management and Business Process Improvement Capabilities</td>
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<td>2.1 Design and Implement Data &amp; Analytics Strategy</td>
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<td>2.3 Design and Deploy Cross-Department Data &amp; Analytics Platform to Promote Data Sharing</td>
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<td>2.4 Deploy Cross-Department Master Data Management Plan</td>
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<td>2.5 Define Analytics Use Cases to Increase Business Value from Data</td>
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<td>3.1.2 Improve Application Portfolio Governance</td>
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<td>3.1.4 Define Cloud Migration Approach &amp; Procure Vendor Support</td>
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<td>3.1.5 Create Detailed Plan for Modernization Efforts</td>
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<tr>
<td>3.2.1 Develop A Hybrid Multi-Cloud Infrastructure Strategy</td>
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### Legend
- **Priority/ Quick Win**
- **Standard Initiative**
- **Ongoing**
## Phase 2 Initiatives (2 of 2)

### 4.0 Put People at the Center

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<thead>
<tr>
<th>Initiative</th>
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<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
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<td>4.1 Build a Digital Services Team</td>
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<td>4.2 Develop a Playbook for Delivery</td>
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<td>4.3 Use Resident Feedback to Prioritize Digital Services</td>
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<td>4.4 Incrementally Deliver Public Services (Platform Approach)</td>
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### 5.0 Collaborate to Innovate

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<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
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<tr>
<td>5.1 Identify Vendor Services Needed to Support Modernization</td>
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<td>5.2 Prioritize and Define Scope for Vendor Services</td>
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### 6.0 Empower & Inspire

<table>
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<th>Q3</th>
<th>Q4</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
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<tr>
<td>6.1 Refresh Position Titles to Support the City’s IT Modernization Initiatives*</td>
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<tr>
<td>6.2 Recruit High Priority IT Lead / Staff Positions*</td>
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<td>6.3 Update IT Training Program to Address Skills Gaps</td>
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<td>6.4 Establish Succession Plan to Mitigate Retirement Risks</td>
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### 7.0 Ensure Equity & Accessibility

<table>
<thead>
<tr>
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<th>Q4</th>
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<tr>
<td>7.1 Extend Accessibility Standards and Multi-Lingual Capabilities</td>
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<tr>
<td>7.2 Define Digital Equity Targets &amp; Metrics</td>
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<tr>
<td>7.3 Apply Digital Equity Metrics to Modernization Initiatives</td>
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</table>

*Initiatives 6.1 and 6.2 should be completed in coordination with each other.*

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**Legend**

- **Priority/Quick Win**
- **Standard Initiative**
- **Ongoing**
2.0 Leverage Data to Spur Innovation
   2.4 Deploy Cross-Department Master Data Management Plan
   2.5 Define Analytics Use Cases to Increase Business Value from Data

3.0 Transform City Infrastructure
   3.1.3 Right Size Application Portfolio
      3.1.3.1 Implement Modernization Group 1 (Rehost)
      3.1.3.2 Implement Modernization Group 2 (Revise)
      3.1.3.3 Implement Modernization Group 3 (Re-Architect)
      3.1.3.4 Implement Modernization Group 4 (Replace)
      3.1.3.5 Implement Modernization Group 5 (Continuous)

4.0 Put People at the Center
   4.1 Build a Digital Services Team
   4.4 Incrementally Deliver Public Services (Platform Approach)

5.0 Collaborate to Innovate
   5.1 Identify Vendor Services Needed to Support Modernization
   5.2 Prioritize and Define Scope for Vendor Services
   5.3 Procure Necessary Services

6.0 Empower & Inspire
   6.4 Establish Succession Plan to Mitigate Retirement Risks

Legend
- Priority/Quick Win
- Standard Initiative
- Ongoing
Identified Roles Critical to Successful Implementation of the IT Strategic Plan

The findings from the Current State Assessment were used to assess critical staffing areas needed to support the IT Strategic Plan. The roles identified are critical for the successful execution and implementation of the IT Strategic goals. These roles identified should be hired in addition to the current staffing resources.

<table>
<thead>
<tr>
<th>Goal #</th>
<th>Goal Description</th>
<th>Role</th>
<th># of FTEs*</th>
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<tbody>
<tr>
<td>1</td>
<td>Reimagine Workforce &amp; Processes</td>
<td>Business Relationship Managers (BRM)</td>
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<td>1</td>
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<td>Change Management Specialist</td>
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<td>1</td>
<td>Reimagine Workforce &amp; Processes</td>
<td>Business Process engineers</td>
<td>2-4</td>
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<td>1</td>
<td>Reimagine Workforce &amp; Processes</td>
<td>IT Vendor Managers</td>
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<tr>
<td>2</td>
<td>Leverage Data to Spur Innovation</td>
<td>Data &amp; Analytics Program Manager</td>
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<td>2</td>
<td>Leverage Data to Spur Innovation</td>
<td>Information Architect</td>
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<td>2</td>
<td>Leverage Data to Spur Innovation</td>
<td>Data Engineer</td>
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<td>2</td>
<td>Leverage Data to Spur Innovation</td>
<td>Data Scientists</td>
<td>1-2</td>
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<tr>
<td>2</td>
<td>Leverage Data to Spur Innovation</td>
<td>Data Analysts</td>
<td>1-2</td>
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<tr>
<td>4</td>
<td>Put People at the Center</td>
<td>Digital Services Team (e.g., UX Designers, Customer Experience Specialists, Content Managers, etc.)</td>
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<td>4</td>
<td>Put People at the Center</td>
<td>Digital Services Delivery Manager/Specialist</td>
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</table>

*These estimated number of FTEs is based on preliminary analysis and requires further validation as the current position titles do not reflect the role of each IT staff member, making it challenging to accurately assess the distribution of IT capabilities within the scope of this engagement. Developing the IT operating model as defined in initiative 1.2, rationalizing the positions titles so that the actual number of staff in each role is adequately determined, and evaluating the current vendor responsibilities are necessary to confirm the recommended strength.
## Identified Roles Critical to Successful Implementation of the IT Strategic Plan

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<th># of FTEs*</th>
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<tr>
<td>3</td>
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<td>Transform City Infrastructure</td>
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<td>3</td>
<td>Transform City Infrastructure</td>
<td>IAM Architect</td>
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<td>Transform City Infrastructure</td>
<td>IT Security Enterprise Architect (threat hunting)</td>
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<tr>
<td>3</td>
<td>Transform City Infrastructure</td>
<td>Cloud Architects</td>
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<td>Program Managers</td>
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*These estimated number of FTEs is based on preliminary analysis and requires further validation as the current position titles do not reflect the role of each IT staff member, making it challenging to accurately assess the distribution of IT capabilities within the scope of this engagement. Developing the IT operating model as defined in initiative 1.2, rationalizing the positions titles so that the actual number of staff in each role is adequately determined, and evaluating the current vendor responsibilities are necessary to confirm the recommended strength.
INITIATIVE DETAILS

Successfully implementing the initiatives to achieve the goal objectives require a thoughtful and comprehensive approach. In order to support the city leadership in driving the needed change, each Initiative has been described in detail to provide a guide to follow.

Before describing each initiative, the strategic context behind it is explained to provide additional background information. Where applicable, industry leading practices based on Gartner research are provided to guide the execution.
Goal 1: Reimagine Workforce & Processes

Overview

Over the past year, City staff has leveraged technology to pivot and adapt to new ways of working. As we move ahead, the City will be relaunching its Technology Strategy Group to provide leadership and direction for refreshing citywide processes needed to make sound IT investments and improve operational efficiency.

Improvements to the citywide IT operating model are recommended to better define the modes of working and clarify roles and responsibilities across all departments. To assist the City in meeting its strategic outcomes, the City should hire Business Relationship Managers as liaisons to promote central IT-department collaboration. Additionally, establishing an organizational change management center of excellence will help facilitate the necessary citywide buy-in and commitment.

Key Initiatives:
- 1.1 – Relaunch Technology Strategy Group
- 1.2 – Improve & Deploy Citywide IT Operating Model
- 1.3 – Hire Dedicated Business Relationship Managers to Improve Central-IT and Department Collaboration
- 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities
Goal 1: Reimagine Workforce & Processes

Strategic Planning Context (summary finding from Current State Assessment)

As a % of total employees, the City of Chicago has far fewer IT staff than comparable city governments in North America. While this relative low share may be a consequence of the higher outsourcing of IT services by the City, the distribution is not commensurate to the level of outsourcing. In particular, the share of staff in IT Management is very low given the level of outsourcing. Moreover, the central IT function at AIS accounts for only 20% of the total IT Staff in the city; excluding Public Safety Agency, Police and Fire, this share rises to 39%. Lastly, given the level of outsourcing, the IT staff at the City is expected to fulfil its role to manage service providers and projects, however it does not have the correct operating model to support that and low maturity with project and portfolio management.

Exhibit 1.1 – IT FTEs as a percentage of Total City Employees

Exhibit 1.2 – Distribution of IT Staffing by Functional Area

Exhibit 1.3 – Distribution of IT within City
Goal 1: Reimagine Workforce & Processes

- 1.1 – Relaunch Technology Strategy Group
- 1.2 – Improve & Deploy Citywide IT Operating Model
- 1.3 – Hire Dedicated Business Relationship Managers to Improve Central-IT and Department Collaboration
- 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities
## Goal 1: Reimagine Workforce & Processes
### Initiative: 1.1 – Relaunch Technology Strategy Group (TSG)

### Overview
- The City had established a Technology Strategy Group c. 2019 which did not achieve traction given the pandemic. This is an important group comprising of Department heads and/or their liaisons that can support and guide IT related decision making.
- As part of an overall effort to implement robust governance, and enable “voice of the customer”, the TSG can serve to align the modernization roadmap with department priorities. It will further help identify unmet needs and systematically prioritize them to advance the organizational agenda over time.

### Execution Guidance and Assumptions
- Define short- medium- and long-term objectives for the Group. Consider the motivation for members to take part in the Group. Consider meeting at least once a quarter, and more frequently initially until sufficient cadence and appropriate lower-level governance bodies have been established.

### Execution Team
- **Owner**: AIS Commissioner
- **Core Duration**: 4 Months
- **Execution Team**: CTO, Department heads, PMO

### Key Activities

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<tr>
<th>Key Activities</th>
<th>Description</th>
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</table>
| Review and refresh the TSG objectives and responsibilities | - Identify the TSG’s objectives to clarify its purpose. These objectives should clarify how the TSG will enable the organization’s vision and accelerate meeting business goals  
- Consider factors such as the scope of work and the degree of impact that committee decisions will have at the enterprise level or within individual departments  |
| Create a charter for the Technology Strategy Group | - Document the mission statement, member roles and responsibilities, and meeting frequency in a formal committee charter. Focus on the standards and structure of the committee without diving too far into specific project management procedures  
- An effective charter should cover the leadership and roles of committee members, responsibilities of committee members and involved individuals, frequency of formal meetings, decision making authority and escalation processes when there is a standstill |
| Develop Technology Strategy Group priorities    | - Define a series of principles that reflect the enterprise’s technology vision in actionable language (the output of this assessment may be used) and which guides the TSG decisions  
- Create tailored messaging material for committee members to communicate principles and other important teachings from the committee to the enterprise. Collect feedback from employees for the committee to review and action |
| Monitor progress of the Technology Strategy Group | - Build and sustain engagement internally; highlight success stories so as to not lose momentum and maintain interest  
- Invite input and advice from stakeholders  
- Monitor and record Technology Strategy Group decisions |

### Key Artifacts Delivered
- Technology Strategy Group charter  
- TSG decision principles  
- TSG meeting minutes, decision logs
Goal 1: Reimagine Workforce & Processes

- 1.1 – Relaunch Technology Strategy Group
- 1.2 – Improve & Deploy Citywide IT Operating Model
- 1.3 – Hire Dedicated Business Relationship Managers to Improve Central-IT and Department Collaboration
- 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities
**Goal 1: Reimagine Workforce & Processes**
**Initiative: 1.2 – Improve & Deploy Citywide IT Operating Model**

### Overview
- **An IT operating model** describes how enterprise information and technology capabilities are orchestrated to achieve the enterprise's strategic objectives. It is underpinned by enterprise leadership and culture to drive actions and behaviors, and it mobilizes digital capabilities across the enterprise to lead, enable and deliver on strategy and business outcomes.
- IT is no longer just the domain of a central IT department, participation in IT-related decision making has broadened across the business. Moreover, the adoption of a bimodal (insource and outsource) organization and agile methodology requires a product-centric IT organization which focuses on business outcomes.
- An improved citywide IT operating model will recognize the practical reality of what is needed to deliver the City’s strategic goals, refine and redefine the ways of working for the city and apply them on a fit-for-purpose basis.

### Key Activities

<table>
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<tr>
<th>Design target state operating model</th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Define overarching operating model design principles</td>
<td></td>
</tr>
<tr>
<td>Evaluate potential operating model patterns</td>
<td></td>
</tr>
<tr>
<td>Define high level target state for each operating model component and their interdependencies aligned to digital/IT ambition</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assess Gaps and Organizational Readiness</th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform maturity/readiness assessment of the 9 components based on defined target state</td>
<td></td>
</tr>
<tr>
<td>Review against digital-it strategy and Gartner best practices and prioritize key areas for change</td>
<td></td>
</tr>
<tr>
<td>Complete skills readiness assessment of current IT staff against the target state needs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop implementation plan</th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Define key recommendations around selected areas utilizing industry best practices</td>
<td></td>
</tr>
<tr>
<td>Outline high level implementation considerations in terms of time, investment, benefit and complexity/change</td>
<td></td>
</tr>
<tr>
<td>Synthesize findings across dimensions and prioritize implementation activities required to reach target state</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Implement</th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Propose pilots to test operating model changes before they are deployed more widely</td>
<td></td>
</tr>
<tr>
<td>Deploy pilots to test the operating model changes and iterate</td>
<td></td>
</tr>
</tbody>
</table>

### Execution Guidance and Assumptions
- Coordination between departments will be required
- Civil Service rules and collective bargaining units needs will need to be accounted for in designing the target state model
- Current level of sourcing, tenured workforce and the need to modernize applications may require implementation of certain priorities before the IT operating model refresh can be accomplished

### Key Artifacts Delivered
- Operating Model Design Principles
- High Level Target Operating Model
- Implementation Plan
- Selected Pilots

### Execution Team
- CIO
- CTO
- Department heads

### Key Dependencies
- N/A

### Timeframe
- 0 – 6 months

### Complexity
- High

### Owner
- AIS Commissioner

### Core Duration
- 4 Months

### One time Cost
- $250 – $500k

### Ongoing Cost
- TBD
Goal 1: Reimagine Workforce & Processes
Initiative: 1.2 – Improve & Deploy Citywide IT Operating Model

The IT Operating Model is itself a complex system of nine interdependent components

- An IT operating model describes how enterprise information and technology capabilities are orchestrated to achieve the enterprise's strategic objectives
- It is underpinned by enterprise leadership and culture to drive actions and behaviors
- It mobilizes digital capabilities across the enterprise to lead, enable and deliver on strategy and business outcomes

Every organization has an operating model, regardless of whether it is explicitly defined or implicitly defined by how things get done.

A change in one component has an impact on other components in the model, the need for changes across the system must be considered when changing one or more components. This ensures that the model remains balanced, and the components synchronized.

Source: Gartner research
Gartner’s IT operating model patterns help accelerate design of the right model for the City

IT Operating Model Patterns

Gartner’s IT operating model patterns are designed to help enterprise better understand the required target state of their IT operating model based on their business model and strategy, inclusive of digital ambition.

The figure depicts Gartner’s five IT operating model patterns on a grid depicting their focus (defining value focused on business outcomes versus technical outcomes) and investment bias (back-office efficiency versus front-office growth and transformation).

Each pattern reflects a difference in the enterprise strategic context and specifically, the anticipated value from IT or Digital. As the names of the patterns suggest, each orchestrates the operating model components around what is being optimized.

Each pattern progressively becomes more tightly linked to the business and business outcomes, increasingly focusing on front-office exploitation of IT.

There are no value judgments implied. Which model is best is contingent on how an organization wants to exploit IT.

Source: Gartner research
The choice of which Operating Model Pattern to use is contingent on the overall business strategy.

**Asset**

The asset-optimizing model is focused on *minimizing the cost of IT resources* (people or technology assets) through consolidation, asset utilization control and life cycle management.

**Process**

The process-optimizing model is still very much focused on efficiency, but it concentrates on the end-to-end cost, standardization and optimization of IT organizations’ processes, rather than assets.

**Service**

The service-optimizing pattern focuses on optimizing the internal customer’s experience, while explicitly achieving contractually negotiated cost and quality goals — that is, it is focused on service outcomes.

**Business Focus**

<table>
<thead>
<tr>
<th>Asset</th>
<th>Process</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back-Office Efficiency/Utility Bias</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Value**

The term “value” is loosely used to describe those models that leverage IT for clear enterprise competitive advantage. The IT operating model focuses on digital business transformation, in particular in increasing revenue from digital products and services.

**Technical Focus**

**Invention**

The invention pattern builds on the goals and capabilities of the value model, leveraging technology capabilities to reinvent the business model rather than just expand the existing model.

**Front-Office Transformation/Growth Bias**

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Goal 1: Reimagine Workforce & Processes

- 1.1 – Relaunch Technology Strategy Group
- 1.2 – Improve & Deploy Citywide IT Operating Model
- 1.3 – Hire Dedicated Business Relationship Managers to Improve Central-IT and Department Collaboration
- 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities
# Goal 1: Reimagine Workforce & Processes

**Initiative: 1.3 – Hire Dedicated Business Relationship Managers (BRM) to Improve Central-IT and Department Collaboration**

## Overview
- The city currently relies on a department liaison being designated to the role of an IT service committee (ITSC) representative. However, their involvement and success on this role depends on having a unique skill set. Specifically, the ITSC is expected to know the business needs of the department they are part of, build a business case for the needed initiatives and achieve sponsorship within the department, articulate them into technical specifications that can be understood and appropriately prioritized by central IT, and articulate the expectation of IT from their department in successfully achieving the necessary changes.
- This consultative mindset requires business acumen, technical knowledge, project management skills and requires extensive training (textbook and on the job in an apprentice model) for the staff currently in this role or must be hired from outside.

## Execution Guidance and Assumptions
- Coordination between departments will be required
- Civil Service rules and collective bargaining units needs will need to be accounted for in designing the role of the business relationship managers and the business analyst
- Department heads will periodically measure progress against customer service plans

## Key Artifacts Delivered
- A RACI model that defines business relationship manager roles and responsibilities
- A revised organization chart that describes the new customer relationship management model
- Customer service plans for each department

## Key Activities

<table>
<thead>
<tr>
<th>Description</th>
<th>Key Dependencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define the required processes for an ITSC customer relationship organization that can serve as the champion of business needs with central IT</td>
<td>1.2 IT Operating Model</td>
</tr>
<tr>
<td>Define the role of a business relationship manager and/or business analyst</td>
<td>6.1 Refresh position titles</td>
</tr>
<tr>
<td>Define and document the RACI for the identified customer relationship management processes</td>
<td></td>
</tr>
<tr>
<td>Conduct a pilot for the customer relationship management process</td>
<td></td>
</tr>
<tr>
<td>Job specification may need to be developed for the role which is further customized for each department</td>
<td></td>
</tr>
<tr>
<td>Consistent with the initiatives listed elsewhere, an appropriate succession and career plan will need to be defined for the talent hired into this role so they can grow in the organization</td>
<td></td>
</tr>
<tr>
<td>Once the necessary approvals have been received, advertise the job posting through appropriate channels to attract qualified candidates</td>
<td></td>
</tr>
<tr>
<td>Consider collaborating with local colleges to provide the necessary training and hire at entry level so that the skills can be further honed internally over time and provide for a succession plan consistent with the talent strategy</td>
<td></td>
</tr>
<tr>
<td>Not every person hired will be necessarily successful in the role, hence ongoing monitoring of performance is needed to evaluate, and course correct as needed</td>
<td></td>
</tr>
</tbody>
</table>
Goal 1: Reimagine Workforce & Processes

- 1.1 – Relaunch Technology Strategy Group
- 1.2 – Improve & Deploy Citywide IT Operating Model
- 1.3 – Hire Dedicated Business Relationship Managers to Improve Central-IT and Department Collaboration
- 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities
Goal 1: Reimagine Workforce & Processes
Initiative: 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities

**Overview**

- The City does not have the capacity or the capability to manage the changes resulting from the recommended modernization initiatives. Furthermore, the city continues to use paper-based processes which hinder the ability for the city to realize the benefits from technology modernization. When modernizing the applications, care must be taken to rationalize the business processes to achieve the benefits that technology can offer, instead of customizing the applications to fit paper-based processes.
- A Change Management Office must be set-up by the City to oversee and ensure appropriate change management is being accounted for through-out the rollout of the future state initiatives (especially with application modernization, Data & Analytics, and talent goals). Business Process improvement capabilities must be formalized and may be made a part of a change management office.

**Key Activities**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a Change Management Plan</td>
<td>Design a change management plan that addresses and engages all people across the different departments likely to be affected by the change. Clarify the likely impact of the change, identify action steps, document and communicate the change management plan.</td>
</tr>
<tr>
<td>Develop a dedicated change management team</td>
<td>The changes coming out of this transformation will be continuous, therefore continuity and consistency is key to establishing a cadence so that the citywide staff remains excited and engaged with the ongoing change. Qualified personnel who can build out this competency following the initial plan must be hired by the city.</td>
</tr>
<tr>
<td>Model business processes across different units</td>
<td>Majority of the business processes at the city are paper based; however, some require more intervention than others, therefore the first step to identify where to begin would be to document these processes and model the user interaction. Use an Enterprise Business Process Analysis (EBPA) tool to develop contextual models, and map to enterprise architecture in systematically improving operations with technology modernization.</td>
</tr>
<tr>
<td>Deploy business process engineers</td>
<td>Hire and deploy business process engineers to measure the processes and make improvement recommendations.</td>
</tr>
</tbody>
</table>

**Execution Guidance and Assumptions**

- Coordination between departments will be required.
- Civil Service rules and collective bargaining units needs will need to be accounted for in designing the role of the business relationship managers and the business analyst.
- Department heads will periodically measure progress against customer service plans.

**Key Dependencies**

- 1.2 IT Operating Model
- 6.1 Refresh position titles

**Key Artifacts Delivered**

- Change Management Plan
- Process Models
**Goal 2: Leverage Data to Spur Innovation**

**Strategic Planning Context (summary finding from Current State Assessment)**

Advancing citywide IT to the next level of maturity will require a business-centric, bimodal organization that is viewed as contributing to the success of business users across all departments. The City will need to increase maturity of citywide Data & Analytics capabilities by creating a citywide Data & Analytics vision, strategy, governance. The City should aim to *prioritize, organize and integrate data assets* by using a standards-based approach, and *aligning data integration practices to use case categories*. The City should also determine which assets need governance and *set, enforce and operationalize governance policies*. Transparency in decision making, active business relationship management, and tying IT performance to business outcomes at all levels will be key to success.

**Exhibit 2.1 – Examples of City of Chicago Data Capabilities**

The City’s Data Portal was launched in 2010. The Data Portal provides city residents, businesses, and employees with access to City and government related data.

The data portal has over 900 dataset variations that provide information on City services, facilities, agencies, and agency performance.

The portal is one example of how data can help increase transparency through easily accessible data while providing opportunities to use the data to spur further innovation of services.
Goal 2: Leverage Data to Spur Innovation

- 2.1 – Design and Implement Data & Analytics Strategy
- 2.2 – Establish City-Wide Data Governance and Ownership
- 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing
- 2.4 – Deploy Cross-Department Master Data Management Plan
- 2.5 – Define Analytics Use Cases to Increase Business Value from Data
- 2.6 – Establish City-Wide Data Literacy Program
### Goal 2: Leverage Data to Spur Innovation

#### Initiative: 2.1 – Design and Implement Data & Analytics Strategy

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
</table>
| Conduct Data & Analytics Current State Assessment | ▪ Conduct deep-dive current state assessment of Data & Analytics capabilities, uses, pain-points, etc.  
▪ Conduct assessment to understand existing Data & Analytics technologies across the organization |
| Define Data & Analytics Strategies | ▪ Define target state vision and strategic outcomes that Data & Analytics will enable |
| Create Data & Analytics Target State Design | ▪ Define required target state capabilities and operating model to achieve vision and strategic outcomes  
▪ Establish metrics and communications plan to track strategy progress  
▪ Define data integration standards and techniques |
| Create Action Plan | ▪ Develop Data & Analytics specific action plan for building-out the target state  
▪ Develop a roadmap for executing on the implementation of the Data & Analytics target state  
▪ Establish key roles and funding to execute the Data & Analytics strategy |

#### Execution Guidance and Assumptions
▪ 3–4-month duration based on the number of departmental stakeholders that would be involved

#### Key Artifacts Delivered
▪ Data & Analytics Vision and Strategies  
▪ Data & Analytics Operating Model  
▪ Data & Analytics Action Plan
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.1 – Design and Implement Data & Analytics Strategy

The City’s Data & Analytics strategy should assist the City in accelerating transformation through sustainable and scalable Data & Analytics capabilities, enabling enterprise-wide business optimization and transformation initiatives.

The City’s overarching data & analytics strategy and operating model should be tied together and incorporate multiple feedback loops so that a change in one likely impacts choices in others.

Using this framework ensures that the City’s strategy is grounded in reality and that new information in one area is reflected in others. The City’s strategy and execution are bound tightly together, with one influencing the other. They become continuous, not subject to time horizons.

Source: Gartner research
Goal 2: Leverage Data to Spur Innovation

- 2.1 – Design and Implement Data & Analytics Strategy
- 2.2 – Establish City-Wide Data Governance and Ownership
- 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing
- 2.4 – Deploy Cross-Department Master Data Management Plan
- 2.5 – Define Analytics Use Cases to Increase Business Value from Data
- 2.6 – Establish City-Wide Data Literacy Program
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

Overview
- This initiative focuses on establishing the Data & Analytics governance framework to define and enforce cross-departmental data and analytics standards / policies.
- It drives top-down governance through the design and establishment of data governance committee structure.
- It supports the bottom’s up enforcement of data and analytics standards / policies through the implementation of the proper enforcement mechanisms.

Execution Guidance and Assumptions
- 3 months to establish the target state governance followed by 6-9 months to operationalize it and then ongoing to sustain it

Key Artifacts Delivered
- Data Governance Vision and Strategies
- Data Governance Action Plan

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define Vision</td>
<td>Define vision and priorities for Data Governance (what does success look like)</td>
</tr>
<tr>
<td></td>
<td>Identify and plan for the scaling of Data &amp; Analytics governance activities</td>
</tr>
<tr>
<td>Design Data &amp; Analytics Target State</td>
<td>Design target state data governance decision accountabilities framework</td>
</tr>
<tr>
<td></td>
<td>Design target state end-to-end data governance enforcement framework</td>
</tr>
<tr>
<td>Create Action Plan</td>
<td>Establish and deploy key governance bodies and roles, including data stewards</td>
</tr>
<tr>
<td></td>
<td>Initiate key data governance and stewardship processes starting with refining communications of existing governance policies for understanding across departments (e.g., Data Classification Policy, Data Sharing Policy, Data Sourcing Policy, Data Privacy/Protection Policy, Data Retention Policy, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>6 – 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity</td>
<td>Low</td>
</tr>
<tr>
<td>One time Cost</td>
<td>&lt; $250k</td>
</tr>
<tr>
<td>Ongoing Cost</td>
<td>NA</td>
</tr>
<tr>
<td>Core Duration</td>
<td>9-12 Months</td>
</tr>
<tr>
<td>Owner</td>
<td>Chief Data Officer</td>
</tr>
<tr>
<td>Execution Team</td>
<td>Chief Data Officer, Departmental Stakeholders, CTO, AIS Data Lead, CISO</td>
</tr>
<tr>
<td>Key Dependencies</td>
<td>Goal 2.1: Design and Implement Data &amp; Analytics Strategy</td>
</tr>
</tbody>
</table>
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

Key Data Stewardship Design Considerations

Who is a Data Steward?
An individual with formal accountability and responsibility to define, control and maintain data and business rules within their domain. They’re responsible for guiding the effort to execute the policies and procedures within their subject area as established by Data Governance.

What is a Stewardship Model?
A business-led model that directs and advises users across the enterprise to ensure that data-related work is performed according to policies and procedures as established through governance.

Common ways to define the data domains of an organization
➢ By Subject Area / Data Domain
➢ By Systems
➢ By Organizational Unit

Example Data Stewardship Model

- Serve as escalation point for Data Stewards and escalates issues through appropriate Data Governance organization
- Communicate the business value of data quality efforts
- Champions the subject area’s cause for prioritization in the organization
- Create and maintain critical data assets
- Ensure that colleagues have timely access to critical data assets
- Form communities of interest to work with Data Stewards
- Provide input into Data Stewards’ decisions
- Responsible for the creation and execution of policies and standards
- Facilitate the execution and support of Data Stewardship processes
- Maintain data catalog and transformation rules
- Provide foundational technologies and support of daily operations
- Define and promote data standards
## Goal 2: Leverage Data to Spur Innovation

### Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

<table>
<thead>
<tr>
<th>Description</th>
<th>Composition</th>
<th>Responsibilities / Accountabilities</th>
<th>Skills / Characteristics</th>
<th>Organizational Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Data Governance body is responsible for the definition of data and analytics standards and the approval and publication of all standards related to data and analytics quality, and the appropriate / effective use of data and analytics capabilities</td>
<td>Chair</td>
<td>Sets the agenda and facilitates Data Governance Council meetings</td>
<td>Possess decision making authority</td>
<td>Part Time Commitment</td>
</tr>
<tr>
<td></td>
<td>Members</td>
<td>Establishes data and analytics related standards, policies, procedures and guidelines</td>
<td>Experience with data usage within the context of their business area</td>
<td>Integrate with other initiatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resolves cross-domain Stewardship issues</td>
<td>Acknowledged expert and frequent contact on data</td>
<td>Include those with tight organizational affinity to Data Governance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forms working groups – Groups that are established to work on tightly scoped, data and analytics specific initiatives, projects to set standards, that require working-level coordination and effort that cannot be accomplished within a Data Governance Council group meeting</td>
<td>Intimate knowledge of key business processes and how those processes are influenced by information</td>
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<td></td>
<td></td>
<td></td>
<td>Deep and comprehensive understanding of the importance and impact of data (or bad data) on the ability to meet business objectives</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>High organizational credibility and respect; ability to communicate and influence the people around them</td>
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</tbody>
</table>
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

<table>
<thead>
<tr>
<th>Description</th>
<th>Responsibilities / Accountabilities</th>
<th>Skills / Characteristics</th>
<th>Organizational Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Information Architect is responsible for the overall design of the information architecture and development of the information-sharing strategy</td>
<td>Determines overall data modeling standards, guidelines, best practices, and approved modeling techniques and approaches</td>
<td>Familiarity with advanced information management practices</td>
<td>Full-time commitment</td>
</tr>
<tr>
<td>Information architecture is best understood as the process of, first, determining which information assets should be treated as critical information (for example, content that needs to be shared consistently), and then creating the requirements, principles, designs and models that strengthen the network effect of sharing such information across the organization</td>
<td>Oversees the documentation of all architecture design and analysis work</td>
<td>Interpersonal skills, including teamwork, facilitation, and negotiation skills and experience</td>
<td>Tight affiliation with the development/technology organization</td>
</tr>
<tr>
<td></td>
<td>Participates in due diligence of new software purchases and has an eye-to-the-market for technologies that can continue to support the Vision of data and analytics</td>
<td>Excellent analytical and technical skills</td>
<td>Works closely with technology to translate logical and physical models</td>
</tr>
<tr>
<td></td>
<td>Supports solution development and Technology/Architecture selection activities and assesses technical architecture</td>
<td>Familiarity with advanced modeling approaches, tools, and model repositories</td>
<td></td>
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<tr>
<td></td>
<td>Provides specifications for physical components, hardware, and software</td>
<td>Ability to apply multiple solutions to business problems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identifies and prioritizes critical data and analytics uses cases and assess their requirements relative to architectural needs</td>
<td>Ability to rapidly comprehend the functions and capabilities of new technologies</td>
<td></td>
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<tr>
<td></td>
<td>▪ Full-time commitment</td>
<td>Knowledge of multiple vendors, products, architectures and approaches</td>
<td></td>
</tr>
</tbody>
</table>
### Goal 2: Leverage Data to Spur Innovation

#### Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

<table>
<thead>
<tr>
<th>Responsibilities / Accountabilities</th>
<th>Skills / Characteristics</th>
<th>Organizational Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Assess the current state of data accuracy, security, privacy and retention within their scope of responsibility</td>
<td>▪ An understanding of how data is used within business processes and its impact</td>
<td>▪ Data stewards are the power users in the business — the visible, action-oriented engine of a data and analytics governance effort. Data stewardship is ideally a business role</td>
</tr>
<tr>
<td>▪ Interpret and enforce activities to ensure target goals for data accuracy improvement and adherence with all other types of data governance policies</td>
<td>▪ Awareness of the security, privacy and quality requirements for critical data entities</td>
<td>▪ The steward will generally be a part-time role of existing resources in the business, rather than a full-time dedicated role</td>
</tr>
<tr>
<td>▪ Identify optimal approaches for resolving data quality or consistency issues to achieve targets</td>
<td>▪ Deep and comprehensive understanding of the importance and impact of data (or bad data) on the ability of the business to meet its own objectives</td>
<td>▪ As the data and analytics governance program matures, the role will generally consume a very small percentage of those resources’ time — perhaps 10% or less</td>
</tr>
<tr>
<td>▪ Work within and beyond their immediate area to implement change in support of the adoption of data governance policies</td>
<td>▪ Exposure to data quality concepts, best practices and tools</td>
<td></td>
</tr>
<tr>
<td>▪ Monitor and track ongoing data (e.g., quality and consistency) levels and other metrics that assess the adherence of data and people to data governance policies</td>
<td>▪ Training in business process improvement and quality assurance</td>
<td></td>
</tr>
<tr>
<td>▪ Reports into the data governance council on escalations or updates on quality and policies</td>
<td>▪ Intimate knowledge of the organization’s key business processes and how those processes are influenced by data</td>
<td></td>
</tr>
<tr>
<td>▪ Actively correct data quality flaws that cannot be addressed fully by automated means</td>
<td>▪ Appreciates data management as a discipline</td>
<td></td>
</tr>
<tr>
<td>▪ Provide input into the data governance council for improvements in the work of governance and stewardship</td>
<td></td>
<td></td>
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</tbody>
</table>

#### Example Governance Role

The Data Steward is the eyes and ears of the business when it comes to their business data. The Data Steward is the first line of defense for managing, monitoring, and resolving data quality issues. The Data Steward role is focused on the enforcement of data and analytics governance policies and the improvement in the quality of data assets. When deviations from standards are detected and not resolved through automated means, the data steward is the focal point for issue resolution or escalation.

The Data Steward is the first line of defense for managing, monitoring, and resolving data quality issues. The Data Steward role is focused on the enforcement of data and analytics governance policies and the improvement in the quality of data assets. When deviations from standards are detected and not resolved through automated means, the data steward is the focal point for issue resolution or escalation.

- An understanding of how data is used within business processes and its impact
- Awareness of the security, privacy and quality requirements for critical data entities
- Deep and comprehensive understanding of the importance and impact of data (or bad data) on the ability of the business to meet its own objectives
- Exposure to data quality concepts, best practices and tools
- Training in business process improvement and quality assurance
- Intimate knowledge of the organization’s key business processes and how those processes are influenced by data
- Appreciates data management as a discipline

Data stewards are the power users in the business — the visible, action-oriented engine of a data and analytics governance effort. Data stewardship is ideally a business role.

The steward will generally be a part-time role of existing resources in the business, rather than a full-time dedicated role.

As the data and analytics governance program matures, the role will generally consume a very small percentage of those resources’ time — perhaps 10% or less.
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

- Gartner research indicates the main reason for data stewardship program failures is that organizations attempt to govern a wider scope than what the organization is ready for.

- **Start small and pilot** with a function area in which data stewardship would provide immediate impact and value.

- **Build momentum** through demonstration of value and success.

- **Expand iteratively** to additional domains or functional areas as capabilities are developed and refined.
Goal 2: Leverage Data to Spur Innovation

Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

Gartner considers four models of Data & Analytics (D&A) operations and recommends a phased approach from executor to facilitator. Starting with a Executor operating model enables building D&A maturity across the enterprise, with prioritized focus on developing modern skills, standardizing tools and technologies and defining metadata standards. Over time, increasing maturity towards Facilitator model enables the organization to scale the capabilities and enable Departments to self serve their D&A needs.

Source: Gartner research

<table>
<thead>
<tr>
<th>Centralized</th>
<th>Executor</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ All capabilities are organized and deployed centrally</td>
<td></td>
</tr>
<tr>
<td>▪ Significant change management</td>
<td></td>
</tr>
<tr>
<td>▪ Potential for bottlenecks</td>
<td></td>
</tr>
<tr>
<td>▪ Capabilities exist both centrally and within divisions</td>
<td></td>
</tr>
<tr>
<td>▪ More governance, decisions, and accountabilities exists centrally versus in business divisions</td>
<td></td>
</tr>
<tr>
<td>▪ Some governance, decisions, and accountabilities reside within the business divisions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capability Maturity</th>
<th>Resource Availability</th>
<th>Speed of Innovation</th>
<th>Cross-Division Cohesion</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>L</td>
<td>L</td>
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<td>M</td>
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<td>M</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Decentralized</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Each business division manages its own capabilities</td>
<td></td>
</tr>
<tr>
<td>▪ Perpetuate a “haves and have-nots” culture with diverse data &amp; analytics maturity</td>
<td></td>
</tr>
<tr>
<td>▪ Without high maturity, potential for data, process, and cost duplication with sub-optimal analytic outputs</td>
<td></td>
</tr>
<tr>
<td>▪ Capabilities exist both centrally and within divisions</td>
<td></td>
</tr>
<tr>
<td>▪ Governance, decisions, and accountabilities are more balanced between central entity and business divisions – preference is to push decisions “down” as much as possible</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capability Maturity</th>
<th>Resource Availability</th>
<th>Speed of Innovation</th>
<th>Cross-Division Cohesion</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>M</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>H</td>
<td>M</td>
<td>H</td>
<td>M</td>
</tr>
</tbody>
</table>

H – High  M – Medium  L – Low
Goal 2: Leverage Data to Spur Innovation

- 2.1 – Design and Implement Data & Analytics Strategy
- 2.2 – Establish City-Wide Data Governance and Ownership
- 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing
- 2.4 – Deploy Cross-Department Master Data Management Plan
- 2.5 – Define Analytics Use Cases to Increase Business Value from Data
- 2.6 – Establish City-Wide Data Literacy Program
# Goal 2: Leverage Data to Spur Innovation

## Initiative: 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing

### Overview
- This initiative focuses on identifying the requirements needed for a city-wide Data & Analytics platform, translating the requirements into a target state architecture and establishing a roadmap of key activities needed to implement and operationalize the platform. Furthermore, it focuses on establishing the enterprise data and analytics infrastructure for enabling fit-for-purpose ingestion, storage, process, and access to city data.
- This initiative focuses on enhancing the reporting and analytics self-service capabilities through alignment to user needs.
- This initiative automates business data preparation rules and workflows to reduce the time spent on manual data preparation.

### Execution Guidance and Assumptions
- 6-9 months to get the initial few critical datasets up and running followed by ongoing work to keep expanding the datasets available in the marketplace.

### Key Artifacts Delivered
- Data & Analytics Platform Analysis and Strategies
- Data & Analytics Enterprise Data Sets
- Fully Deployed Data & Analytics Data Sharing Platform Solution
Goal 2: Leverage Data to Spur Innovation

- 2.1 – Design and Implement Data & Analytics Strategy
- 2.2 – Establish City-Wide Data Governance and Ownership
- 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing
- 2.4 – Deploy Cross-Department Master Data Management Plan
- 2.5 – Define Analytics Use Cases to Increase Business Value from Data
- 2.6 – Establish City-Wide Data Literacy Program
## Goal 2: Leverage Data to Spur Innovation
### Initiative: 2.4 – Deploy Cross-Department Master Data Management Plan

### Overview
- Master Data Management allows business and IT to work together to ensure the uniformity, accuracy, stewardship, governance, consistency and accountability of an enterprise’s official shared master data assets.
- This initiative focuses on continuing to incrementally develop the Data & Analytics capability to manage the city of Chicago’s master data assets across the end-to-end data lifecycle by:
  - Enforcing a common cross-departmental definition of key master data elements
  - Providing data lineage, transparency and access mechanisms into critical master data (e.g., data catalog, metadata audit trail, etc.)

### Execution Guidance and Assumptions
- 9–12 month duration based on the number of departmental involved in setting up city wide Master Data Management solution

### Execution Team
- Chief Data Officer
- Information Architect
- Data Engineer
- Departmental stakeholders

### Key Artifacts Delivered
- Data & Analytics Master Data Management Strategy
- Fully Deployed Master Data Management Solution

### Key Dependencies
- Goal 2.2: Establish City-Wide Data Governance and Ownership
- Goal 2.3: Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing

### Key Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish data domains</td>
<td>Identify and prioritize master data domains (e.g., citizen, employee, etc.)</td>
</tr>
<tr>
<td>Create data standards</td>
<td>Develop a common business taxonomy and nomenclature for the selected domain</td>
</tr>
<tr>
<td>Develop Master Data Management requirements</td>
<td>Develop Master Data Management department and technology requirements</td>
</tr>
<tr>
<td>Deploy and Monitor</td>
<td>Incrementally configure and deploy Master Data Management capability to harmonize and make master data accessible across remaining master data domains</td>
</tr>
</tbody>
</table>

### Timeframe
- 12 – 18 months

### Complexity
- High

### One time Cost
- $500k - $1M

### Ongoing Cost
- < $250k

### Core Duration
- 9-12 months

### Owner
- Chief Data Officer

### Cost
- $500k - $1M

### Complexity
- High

### Ongoing Cost
- < $250k
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.4 – Deploy Cross-Department Master Data Management Plan

- **Master Data Management (MDM)** is the consistent and uniform set of identifiers and extended attributes that describe the core entities of the enterprise. MDM is about achieving business value by establishing trust in the City’s master data. MDM is application neutral — it delivers trust in master data across the enterprise. It requires significant collaboration with the business to be successful.

- **Core benefits of implementing a MDM plan are following:**
  - Improved lead times to launch new services and initiatives and synchronization of services and location data across processes to support service delivery.
  - A shared, trusted, single view of enterprise data leveraged by all processes, all departments for a more customer-centric experience and improved service delivery.
  - Improved business operations, from more effective decision making — facilitated by accurate reporting and analytics. A strategy that seeks to transform the business through services and initiatives, is enabled to deliver on its value proposition much more effectively.

Source: Gartner research
Goal 2: Leverage Data to Spur Innovation

- 2.1 – Design and Implement Data & Analytics Strategy
- 2.2 – Establish City-Wide Data Governance and Ownership
- 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing
- 2.4 – Deploy Cross-Department Master Data Management Plan
- 2.5 – Define Analytics Use Cases to Increase Business Value from Data
- 2.6 – Establish City-Wide Data Literacy Program
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.5 – Define Analytics Use Cases to Increase Business Value from Data

**Overview**
- This initiative focuses on proactively identifying and understanding use cases from across departments to begin executing to drive value from data.
- This initiative serves to assist with populating the Data & Analytics backlog and prioritize use cases based on value provided to the city.
- This initiative forms part of the iterative process to continue to identify, develop, prioritize and execute business use cases.

**Execution Guidance and Assumptions**
- Ongoing effort to keep identify the critical use cases and prioritizing them. Start with a Proof of Concept using a couple of use cases and then expand with continuous release.

**Execution Team**
- Chief Data Officer
- Information Architect
- Data Engineer
- Data Scientists
- Analysts

**Key Dependencies**
- Goal 2.1: Design and Implement Data & Analytics Strategy
- Goal 2.3: Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing

**Key Artifacts Delivered**
- Data & Analytics Use Cases

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create Analytics Use Case</td>
<td>Develop use case prioritization, process, framework and backlog that balances gathering use case information quickly with gathering enough information needed for prioritization</td>
</tr>
<tr>
<td>Framework</td>
<td></td>
</tr>
<tr>
<td>Identify Use Cases</td>
<td>Identify the universe of Data &amp; Analytics use cases across departments</td>
</tr>
<tr>
<td></td>
<td>Capture required prioritization information for each use case</td>
</tr>
<tr>
<td></td>
<td>Understand and document challenges with executing existing use cases within the department (e.g., data requirements, skill requirements, tools, etc.)</td>
</tr>
<tr>
<td>Deploy Use Cases</td>
<td>Incrementally deploy Business Intelligence Minimum Viable Products</td>
</tr>
<tr>
<td>Deploy and Monitor</td>
<td>Incrementally execute and deploy predictive and prescriptive analytics Minimum Viable Products</td>
</tr>
</tbody>
</table>

**Table:**

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>12 – 18 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity</td>
<td>Low</td>
</tr>
<tr>
<td>Owner</td>
<td>Chief Data Officer</td>
</tr>
<tr>
<td>Core Duration</td>
<td>9-12 months</td>
</tr>
<tr>
<td>Ongoing Cost</td>
<td>NA</td>
</tr>
<tr>
<td>One time Cost</td>
<td>&lt;$250k</td>
</tr>
</tbody>
</table>

**Timeframe**
- 12 – 18 months

**Complexity**
- Low

**Owner**
- Chief Data Officer

**Core Duration**
- 9-12 months

**Ongoing Cost**
- NA

**One time Cost**
- <$250k
Goal 2: Leverage Data to Spur Innovation

- 2.1 – Design and Implement Data & Analytics Strategy
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- 2.6 – Establish City-Wide Data Literacy Program
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.6 – Establish City-Wide Data Literacy Program

Overview
- This initiative focuses on developing a data literacy strategy to mature data understanding and usage across departments.
- Personas are developed which tie back to key data and analytics user groups across the city based on skills and maturity; personas are tied to data literacy upskilling and professional development data paths.

Key Activities

<table>
<thead>
<tr>
<th>Description</th>
<th>Timeframe</th>
<th>Complexity</th>
<th>Owner</th>
<th>Execution Team</th>
<th>Key Dependencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Define Data Literacy Strategy</strong></td>
<td>0 – 6 months</td>
<td>Low</td>
<td>Chief Data Officer</td>
<td>Information Architect, Data Engineer, Departmental Stakeholders</td>
<td>N/A</td>
</tr>
<tr>
<td>Develop an understanding of current literacy capabilities and maturity levels across the organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop data literacy strategy and personas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Develop Curriculum</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop data literacy curriculum and content</td>
<td></td>
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</tr>
<tr>
<td>Develop training structure, content, and cadence based on user personas</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Deploy Content</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deploy data literacy curriculum and content</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Monitor</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Define data literacy KPIs</td>
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<td></td>
</tr>
<tr>
<td>Continuously baseline and benchmark data literacy for continuous improvement</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Execution Guidance and Assumptions
- 6-9 months to come up with an initial data literacy launch followed by ongoing content creation and training

Key Artifacts Delivered
- Data Literacy Program Strategy
- Data Literacy Action Plan

Note: in practice these data literacy planning activities are likely to progress somewhat in parallel, rather than being sequential.
Goal 2: Leverage Data to Spur Innovation

Initiative: 2.6 – Establish City-Wide Data Literacy Program

Figure 2.2 – Data Literacy Capabilities & Competencies

Source: Gartner research
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.6 – Establish City-Wide Data Literacy Program

- There are Four levels to Data Literacy. Some roles require “101” literacy levels in certain areas whereas others may require to be all the way at “401”

<table>
<thead>
<tr>
<th>Level</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Awareness</td>
<td>Minimum level of basic understanding that enables meaningful communication between stakeholders when leveraging data &amp; analytics solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ability to ask the right questions when embarking on a new project - Enable opportunities for ideation &amp; innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Awareness-level data literacy content to be made available to 100% of the organization</td>
</tr>
<tr>
<td>201</td>
<td>Learner</td>
<td>Entry level education for certain personas or profiles within the organization.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This level of data literacy will help employees learn the impact of specific areas of data &amp; analytics on their job function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enable opportunities to innovate ways of working and develop new data-driven business models</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Designed to engage 50-60% organization</td>
</tr>
<tr>
<td>301</td>
<td>Practitioner</td>
<td>Intermediate level of data literacy. Data literacy skills training supports employees applying data &amp; analytics concepts that are critical to the success of their everyday work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enable opportunities to improve everyday work tasks and support others to better use data &amp; analytics in the organization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Targeted skills development for regular data &amp; analytics users, approximately 20-30% of the organization</td>
</tr>
<tr>
<td>401</td>
<td>Instructor/Expert</td>
<td>Training and coaching is designed at the deepest level of data literacy (also referred to as “fluency” or “mastery”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expert knowledge required to lead how the organization uses data &amp; analytics across all business functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enable opportunities to build new sources of business value, optimize efficiencies and mitigate risks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Targeted training and coaching for specific expert individuals, approximately 5% of the organization</td>
</tr>
</tbody>
</table>

* Level 0 = Unaware

Source: Gartner research
Goal 2: Leverage Data to Spur Innovation
Initiative: 2.6 – Establish City-Wide Data Literacy Program

- Data Literacy Personas ensure data & analytics training is specific and tailored to an individual’s day-to-day job and career aspirations without being overly prescriptive
- The proposed personas are intended to be mutually exclusive, however, it should also be recognized that some employees may wear “multiple hats”
- Staff are encouraged to self-select their persona(s) and align to the learning path that will help them achieve their goals
- Successful adoption requires collaboration with department leaders and employees at all levels
- Personas can be aspirational
- There are Five archetype Data Literacy Personas. Each Persona requires a different levels of data literacy to enable success in their respective roles.

Figure 2.3 – Example Data Literacy Persona Archetypes

Source: Gartner research
## Goal 2: Leverage Data to Spur Innovation
### Initiative: 2.6 – Establish City-Wide Data Literacy Program

### Explanation of Archetype Data Literacy Personas

<table>
<thead>
<tr>
<th>Archetype</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>01 Data &amp; Analytics Sponsors</strong></td>
<td>Executive leadership who are primarily responsible for driving the strategic agenda of the organization. Understands the value and promotes the use of data &amp; analytics, and actively uses and asks for data to support decision-making.</td>
</tr>
<tr>
<td><strong>02 Data &amp; Analytics Ambassadors</strong></td>
<td>Middle management or core staff who proactively identify mission opportunities and/or areas of growth involving data &amp; analytics. Sponsors or leads efforts to share and/or collaborate with data &amp; analytics both internal and external to the organization.</td>
</tr>
<tr>
<td><strong>03 Mission Enablers &amp; Core Operational Roles</strong></td>
<td>Core staff whose focus is to deliver the mission of the organization, and data &amp; analytics is used to some extent to support those mission objectives. Consumes and/or creates data as part of day-to-day business domain and line-of-business functional activities, and is frequently analyzing results and communicating findings.</td>
</tr>
<tr>
<td><strong>04 Analysts and Data Scientists</strong></td>
<td>Core or technical staff that routinely manages, retrieves, and/or analyzes data using advanced statistical modelling and/or other data science methodologies. Serves as experts in data management, business intelligence, advanced analytics, etc.</td>
</tr>
<tr>
<td><strong>05 Data Architects, Engineers and Implementers</strong></td>
<td>Core or technical staff that supports implementation, architecture, and/or other technical needs for information and data management systems. Leads or supports creating, managing, and/or updating data management pipelines, systems and applications that store and process the organization’s data. Delivers data engineering, data transformation and data integration.</td>
</tr>
</tbody>
</table>

Source: Gartner research
Goal 3: Transform City Infrastructure

- 3.1 – Modernize Application Portfolio and Supporting Technologies
- 3.2 – Strengthen Technology Infrastructure, Integration & Security
Goal 3: Transform City Infrastructure

Strategic Planning Context (summary finding from Current State Assessment)

As a % of operating budget, the City’s overall IT Spend is comparable to peer level US cities (i.e., 75th percentile of peer governments). However, the operational inefficiencies caused by its aging application portfolio are causing the City to spend more of its IT budget on running its “back-office” systems than its peers. Although the City is making progress in shifting to more modern platforms (e.g., Chicago 311 on Salesforce), 43% of the applications are in poor technical condition requiring replacement or migration to more modern, sustainable technologies. This situation prevents the City from further investing in its IT and digital capabilities and limits its capacity to transform public services for Chicagoans.

Exhibit 3.1 – Application Fitness and/or Technical Condition

- The City has taken steps to modernize its infrastructure through current efforts to migrate to modern platforms (e.g., Chicago 311 on Salesforce). Still, many of the City’s mission-critical systems are supported by aging technologies. Increasing efforts to replace or migrate applications to more modern, sustainable technologies will assist the City in achieving its goal of providing more equitable services to all Chicagoans.

- Initiatives identified for this goal are intended to build upon the City’s current infrastructure improvements. Current technology infrastructure projects include the migration of the City’s call center to a cloud-based platform and the ongoing modernization of the City’s business applications.

- The City has taken steps to modernize its infrastructure through current efforts to migrate to modern platforms (e.g., Chicago 311 on Salesforce). Still, many of the City’s mission-critical systems are supported by aging technologies. Increasing efforts to replace or migrate applications to more modern, sustainable technologies will assist the City in achieving its goal of providing more equitable services to all Chicagoans.

- Initiatives identified for this goal are intended to build upon the City’s current infrastructure improvements. Current technology infrastructure projects include the migration of the City’s call center to a cloud-based platform and the ongoing modernization of the City’s business applications.
These 27 applications are cost-effective in satisfying business needs at an acceptable level of risk and quality of service.

As the placement in the matrix indicates, these applications have low-to-medium fit in satisfying business requirements, but medium-to-high alignment to technical standards.

In many cases, these applications are not optimized or aligned to current business processes, or the business fitness of these applications has deteriorated over time due to new requirements being developed, changing business context and emerging new technology.

City should re-evaluate application assets while making significant efforts to improve overall functionality and favorable perception among users.

### Application Name

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Business Unit</th>
<th>Modernization Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRLINE REIMBURSEMENT</td>
<td>CDA</td>
<td>Functionality</td>
</tr>
<tr>
<td>ARCGIS</td>
<td>AIS BoIT, CDOT</td>
<td>Functionality</td>
</tr>
<tr>
<td>AUTO - SPAR</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>AUTO CR</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>BANNER</td>
<td>AIS BoIT, OIG, DWM, DPD, OIG</td>
<td>Architecture</td>
</tr>
<tr>
<td>CLEARNET</td>
<td>CPD, OIG</td>
<td>Functionality</td>
</tr>
<tr>
<td>COURT NOTIFICATION</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>CRIMINAL REGISTRATION</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>DTS DASHBOARD</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>ECM</td>
<td>AIS BoIT, CDPH, DFSS, MOPD</td>
<td>Functionality</td>
</tr>
<tr>
<td>ERI</td>
<td>CPD</td>
<td>Functionality</td>
</tr>
<tr>
<td>EVERBRIDGE MASS NOTIFICATION</td>
<td>CDA</td>
<td>Functionality</td>
</tr>
<tr>
<td>EVIDENCE.COM (BODY WORN CAMERA)</td>
<td>OIG</td>
<td>Functionality</td>
</tr>
<tr>
<td>FIELD TRAINING EVALUATION</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>FIREARM CERTIFICATION</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>FLEETFOCUS</td>
<td>AIS_non_BoIT, OIG</td>
<td>Functionality</td>
</tr>
<tr>
<td>FMS</td>
<td>CDA</td>
<td>Functionality</td>
</tr>
<tr>
<td>FUSION CENTER</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>HHGMS</td>
<td>CDPH</td>
<td>Functionality</td>
</tr>
<tr>
<td>INVESTIGATORY STOP REPORTS (ISR)</td>
<td>CDOT, DOB, BACP</td>
<td>Functionality</td>
</tr>
<tr>
<td>IPS 11</td>
<td>CDOT, DOB, BACP</td>
<td>Functionality</td>
</tr>
<tr>
<td>MURAL REGISTRY</td>
<td>DCASE</td>
<td>Functionality</td>
</tr>
<tr>
<td>OFFICER ACTIVITY REPORTING</td>
<td>OIG</td>
<td>Technology</td>
</tr>
<tr>
<td>QMATIC</td>
<td>BACP</td>
<td>Functionality</td>
</tr>
<tr>
<td>TACTICAL REPORTS</td>
<td>OIG</td>
<td>Functionality</td>
</tr>
<tr>
<td>TRAFFIC COUNT</td>
<td>CDOT</td>
<td>Architecture</td>
</tr>
<tr>
<td>TRAFFIC TRACKER</td>
<td>CDOT</td>
<td>Functionality</td>
</tr>
</tbody>
</table>
These **74** applications are cost-effective in satisfying business needs at a low level of risk and high quality of service.

As the placement in the matrix indicates, these applications have medium-to-high fit in satisfying business requirements, and medium-to-high alignment to technical standards.

These applications seem to be optimized and/or aligned to current business processes.

City should maintain/evolve application assets. It should look at these systems as future strategic platforms and identify whether there are ways to further improve agility and efficiency.
Goal 3: Transform City Infrastructure

Invest: Look to adopt as future strategic platforms and find ways to further improve agility and efficiency (2 of 3)

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<table>
<thead>
<tr>
<th>Application Name</th>
<th>Business Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSS SNOW SURVEY</td>
<td>DSS</td>
</tr>
<tr>
<td>DSS TRANSFER REQUEST</td>
<td>DSS</td>
</tr>
<tr>
<td>EDS</td>
<td>DPS</td>
</tr>
<tr>
<td>EDUCATION AND TRAINING DIVISION</td>
<td>OIG</td>
</tr>
<tr>
<td>EFI PRINTSMITH</td>
<td>AIS_non_BoIT</td>
</tr>
<tr>
<td>ELECTRONIC FINANCIAL INTEREST STATEMENTS (EFIS)</td>
<td>Board of Ethics</td>
</tr>
<tr>
<td>ENCASE FORENSICS</td>
<td>OIG</td>
</tr>
<tr>
<td>EPLAN</td>
<td>DOB, CDOT</td>
</tr>
<tr>
<td>ETHICS TASK FORCE FORUM</td>
<td>Board of Ethics</td>
</tr>
<tr>
<td>ETHICS TRAINING</td>
<td>Board of Ethics, AIS BoIT, CDA, CDOT</td>
</tr>
<tr>
<td>ETRAKKER</td>
<td>AIS_non_BoIT</td>
</tr>
<tr>
<td>EZPROXY</td>
<td>CPL</td>
</tr>
<tr>
<td>FARMERS MARKET</td>
<td>DCASE, AIS BoIT</td>
</tr>
<tr>
<td>FILM PERMITS</td>
<td>DCASE</td>
</tr>
<tr>
<td>FREIGHT &amp; TROLLEY</td>
<td>CDOT</td>
</tr>
<tr>
<td>GBMS</td>
<td>AIS_non_BoIT</td>
</tr>
<tr>
<td>GREENSLIPS</td>
<td>AIS BoIT, OIG</td>
</tr>
<tr>
<td>HOUSE SHARE REGISTRATION SYSTEM</td>
<td>BACP</td>
</tr>
<tr>
<td>HOUSING DEVELOPMENT PRO</td>
<td>CDPH</td>
</tr>
<tr>
<td>IDENTIPASS/PREMISYS</td>
<td>DWM</td>
</tr>
<tr>
<td>IPI</td>
<td>AIS BoIT</td>
</tr>
<tr>
<td>IRIS</td>
<td>DOF, BACP, CDA, CDOT, OIG, MOPD</td>
</tr>
<tr>
<td>LAW DISCOVERY</td>
<td>DOL</td>
</tr>
<tr>
<td>LAW ECOPY</td>
<td>DOL</td>
</tr>
<tr>
<td>LAW FILE SHARE</td>
<td>DOL</td>
</tr>
<tr>
<td>LAW PRESERVATION</td>
<td>DOL</td>
</tr>
<tr>
<td>LCP TRACKER</td>
<td>DPS, DPD, OIG</td>
</tr>
</tbody>
</table>
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These 43 applications are critical as providing value to the business but at high risk and high cost to maintain.

As the placement in the matrix indicates, these applications have low-to-medium alignment to technical standards and a medium-to-high in satisfying business requirements.

These applications are valuable business assets but pose a risk or have quality issues in areas like stability, security, maintainability and supportability caused by old or unsupported technology or high complexity or cost.

City should modernize these application assets. It should reduce the scope of the application by pulling out functions and consider upgrading to a newer platform/version to reduce IT risk and cost.
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City should modernize these application assets. It should reduce the scope of the application by pulling out functions and consider upgrading to a newer platform/version to reduce IT risk and cost.
Goal 3: Transform City Infrastructure

Eliminate: Retire the application, replace with a new platform or consolidate into another with similar capabilities (1 of 2)

- These 32 applications no longer provide significant business value in a cost-effective way.
- As the placement in the matrix indicates, these applications have low-to-medium alignment to technical standards and a low-to-medium in satisfying business requirements. Low fitness does not mean that an application is obsolete. There’s the chance that departments and other systems might still rely on (part of) the applications functions and data.
- Considerations for this applications also include migration or consolidation or decommission, dependent on understanding business dependencies and dependencies with other systems first.
- City should retire/consolidate application assets. Replace the platform — either with a new system or with a system already installed that can provide similar capabilities is an effective strategy to employ.
These 32 applications no longer provide significant business value in a cost-effective way.

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Considerations for this applications also include migration or consolidation or decommission, dependent on understanding business dependencies and dependencies with other systems first.

City should retire/consolidate application assets. Replace the platform — either with a new system or with a system already installed that can provide similar capabilities is an effective strategy to employ.
Goal 3: Transform City Infrastructure

Investigate: Additional investigation is needed to evaluate disposition for application where data is not available

- For 174 applications sufficient information was not available to develop a TIME disposition
- This was due to a combination of not being able to determine an appropriate stakeholder (business, technical, and/or architecture), or the identified stakeholder not providing requested information (No response, or “Don’t Know”)
- City should further investigate these applications to determine their disposition
Goal 3.1: Modernize Application Portfolio and Supporting Technologies

- 3.1.1 – Build a Dedicated Application Modernization Project Team
- 3.1.2 – Improve Application Portfolio Governance
- 3.1.3 – Right Size Application Portfolio
- 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support
- 3.1.5 – Create Detailed Plan for Modernization Efforts & Streamlining Application Portfolio Over the Long Term
# Goal 3: Transform City Infrastructure

## Initiative: 3.1.1 – Build a Dedicated Application Modernization Project Team

### Overview
- Application Modernization is a long running program and requires a dedicated team that can focus on the work required for modernization work.
- This cross-functional team should include program and project managers, but also enterprise architects and incorporate members from the departments to provide tactical guidance while modernizing.

### Complexity
- **Medium**

### Cost
- **NA**

### Owner
- CTO

### Core Duration
- 4 Months + ongoing execution

### Execution Team
- AIS
- Departments

### Key Dependencies
- N/A

### Key Activities

<table>
<thead>
<tr>
<th>Build Team</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identify a dedicated project manager and team to oversee the multi-year application modernization effort</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop modernization sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Review the applications identified for retirement and modernization in the Current State Assessment with the Technology Strategy Group and City departments in order to confirm the modernization sequence and approach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluate and monitor progress</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Establish the governance process to define and measure metrics</td>
</tr>
</tbody>
</table>

### Execution Guidance and Assumptions
- NA

### Key Artifacts Delivered
- Approved modernization sequence
- Governance process to evaluate progress and remove hurdles to progress
Goal 3.1: Modernize Application Portfolio and Supporting Technologies

- 3.1.1 – Build a Dedicated Application Modernization Project Team
- 3.1.2 – Improve Application Portfolio Governance
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## Goal 3: Transform City Infrastructure
### Initiative: 3.1.2 – Improve Application Portfolio Governance

**Overview**

- This initiative focuses on the development of a transparent end-to-end application investment request intake process.
- This initiative allows the application portfolio governance team and stakeholders to improve cost transparency, understand technical condition, and make fact-based central decisions while guiding / enabling departments.
- An iterative governance structure ensures data is informing modernization and facilitates continuous planning.
- This initiative will also help determining appropriate business and technical stakeholders for an application to determine a disposition for them within the portfolio.

**Execution Guidance and Assumptions**

- Duration based on 3 months of planning, developing processes, tooling, etc. and 3 months to socialize, pilot, and implement process(es); implementation may last more than 3 months.
- Consider leveraging existing intake/demand management tools and/or application portfolio analysis/EA tools.
- Continue data collection and take action on the most expensive applications.

**Key Artifacts Delivered**

- Investment and Operational Processes
- Governance Team Role Description
- Decision Rights
- Performance Scorecard to Advise and Keep Momentum

### Key Activities

<table>
<thead>
<tr>
<th>Establish Application Portfolio Governance and Sponsorship</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Obtain buy-in and senior leadership support across departments to promote enterprise-wide adoption</td>
</tr>
<tr>
<td></td>
<td>Establish application portfolio governance team</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Establish Application Investment and Operational Processes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assess current processes for improvement opportunities</td>
</tr>
<tr>
<td></td>
<td>Design and socialize the application investment and operational processes with key stakeholders providing feedback and input</td>
</tr>
<tr>
<td></td>
<td>Modify investment process(es) to include application portfolio governance team participation in new application and modernization requests (refer to business capabilities &amp; overarching technology strategy)</td>
</tr>
<tr>
<td></td>
<td>Leverage data through continuously improving operational process(es) that inform the investment process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pilot Application Investment Process(es) With Any Modifications</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Create a pilot process to take a small amount of application investment requests through the modified process(es)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Execute and Monitor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incrementally deploy and scale the process(es) across the City</td>
</tr>
<tr>
<td></td>
<td>Continuously monitor performance for improvement opportunities</td>
</tr>
</tbody>
</table>

### Complexity

- Medium

### Cost

- $250K – 500k

### Owner

- Enterprise Architecture Lead

### Core Duration

- 6 months

### Execution Team

- Senior Architecture Lead
- Program Manager

### Key Dependencies

- N/A
Examples of a Portfolio Dashboard on a Page

- An example of **clean formatting** and **actionable metrics** that allow senior portfolio decision makers to **easily process key information** and act decisively.

**Application Team**

**“Is Change Happening?”**

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Governance</th>
<th>Strategic Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,234 applications</td>
<td>8 of 12 business units engaged</td>
<td>4 of 12 business capability investment plans</td>
</tr>
<tr>
<td>81% completeness across attributes</td>
<td>4 of 15 seats on steering committees</td>
<td>30% in design</td>
</tr>
<tr>
<td>61% support</td>
<td></td>
<td>50% being executed</td>
</tr>
<tr>
<td>39% development</td>
<td></td>
<td>20% complete</td>
</tr>
</tbody>
</table>

**Business Measures**

**“Are Benefits of Change Being Realized?”**

<table>
<thead>
<tr>
<th>Portfolio Fitness</th>
<th>Optimizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>RemEDIATE: 40% tolerate, migrate, eliminate</td>
<td>$40m Planned reduction over 3 years (business and IT spend)</td>
</tr>
<tr>
<td>Legacy: 20% over 20 years old</td>
<td></td>
</tr>
<tr>
<td>In-Cloud: 30% hosted in IaaS, PaaS or SaaS</td>
<td>$10m realized savings (business and IT savings)</td>
</tr>
</tbody>
</table>

**Business Value**

1. Greater Agility
2. Lower Risk
3. More Features

Top benefits cited by 80% of associates -2019 satisfaction

**Standardization**

Redundancy: 30% duplicative applications
Platforms: 60% align to standard platforms
Goal 3.1: Modernize Application Portfolio and Supporting Technologies

- 3.1.1 – Build a Dedicated Application Modernization Project Team
- 3.1.2 – Improve Application Portfolio Governance
- 3.1.3 – Right Size Application Portfolio
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- 3.1.5 – Create Detailed Plan for Modernization Efforts & Streamlining Application Portfolio Over the Long Term
### Goal 3: Transform City Infrastructure

#### Initiative: 3.1.3 – Right Size Application Portfolio

#### Overview
- This initiative focuses on costly, fitness-challenged applications that support table stakes capabilities.
- This initiative prioritizes custom or heavily customized applications that don’t have known City initiatives in-flight; general best practice is to leverage off-the-shelf technologies for these enterprise applications which provide capabilities of record.
- Applications in the ‘Migrate’ and ‘Eliminate’ quadrant of Gartner’s TIME methodology are prioritized for this initiative; with some of the ‘Migrate’ applications also in consideration for initiative 3.1.4.

#### Execution Guidance and Assumptions
- Duration based on 6 months for strategy and vendor(s) selection and 12 months to implement and rationalize; implementation may last more than 12 months, and this process would need to be done per area (bullet below)
- Hypothesis that the activities (right) should be followed for HR (Oracle, etc.), Case Management, and Grants; cost increases w/ the # of deep dives and currently accounts for strategy & selection only (not implementation)
- Focus on achieving must-have needs; will require change mgmt. as vendor processes will likely be adopted/configured

#### Execution Team
- Domain architect & EA
- Domain-specific business stakeholders

#### Key Dependencies
- N/A

#### Key Activities

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1. Define Business Capabilities | - Develop Business Capability Model Level 2 for each priority Level 1 capability / functional area  
- Define differentiating use cases and requirements (via workshops) and understand which capabilities make Chicago unique |
| 2. Develop Target State | - Identify application architecture options  
- Select target application architecture  
- Establish vendor shortlists (as necessary) |
| 2. Develop Roadmap      | - Develop roadmap and include initial thoughts on any implementation and foundational initiatives that will be needed along with plans to retire any application(s) |
| 2. Agree on vendor(s)   | - Issue RFx and evaluate demos and/or orals (as necessary) |
| 2. Execute / implement  | - Implement and/or take the necessary steps to rationalize the application portfolio in each specific area (linkage to initiative #2) |

#### Complexity
- High

#### Cost
- $250K-$500K

#### Core Duration
- 18 Months

#### Owner
- CTO

#### Key Artifacts Delivered
- More granular capabilities with differentiation / uniqueness identified
- Target state application architecture
- Vendor shortlists as necessary
Some mission-critical systems, as well as some of the costliest applications in the portfolio, are among the strongest candidates for “Eliminate” / “Replace” or “Migrate” / “Modernize”. The city needs to prioritize modernization efforts for the following mission critical platforms.

- **Hansen 7**: The City’s Infor-Hansen system supporting land management and permitting functions is 12-19 years old and is currently in the retirement phase of its life cycle. Hansen 7 is recognized as a system that needs to be replaced. There is an effort underway to replace this essential application.

- **Oracle HR**: Although used city-wide, Oracle HR is an old (12-19 years), heavily modified commercial off-the-shelf (COTS) application which is complex to extend and scored poorly for usability and effectiveness in meeting City business processes. The City should replace this app.

- **Remedy (case management)**: The assessment identified this application to be in ‘retirement’ status, heavily modified commercial off-the-shelf (COTS), and used internally only. The application is challenged from a business fitness perspective and even more so from a technical condition perspective. Action should be taken on this application, but the City should look at case management more broadly to optimize future investment.
Goal 3.1: Modernize Application Portfolio and Supporting Technologies

- 3.1.1 – Build a Dedicated Application Modernization Project Team
- 3.1.2 – Improve Application Portfolio Governance
- 3.1.3 – Right Size Application Portfolio
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- 3.1.5 – Create Detailed Plan for Modernization Efforts & Streamlining Application Portfolio Over the Long Term
Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

Overview
- Over 40% of the City’s applications currently hosted on-premise are suitable for cloud migration. There is an opportunity to leverage cloud capabilities to provide more elasticity in supporting the City’s needs as they change over time.
- This initiative focuses on driving a reliable, structured process to establish cloud as a Citywide capability.
- Once the top-down cloud foundations and strategy is created, use bottoms-up data collected during Gartner’s application portfolio assessment to support application migration planning.
- While sequencing for migration to the cloud will depend on the final cloud migration approach, an initial suggestion will be to consider applications in the ‘Migrate’, ‘Tolerate’ and ‘Invest’ quadrant, respectively.

Execution Guidance and Assumptions
- Initiative duration based on 4 months process to establish cloud foundations/strategy; Cloud migration execution will be ongoing
- Continue data collection as progress is made to continuously inform potential migrations (application governance linkage)

Key Artifacts Delivered
- Cloud operating model
- Cloud architecture practices
- Cloud governance
- Cloud financial model

Key Activities

Assess Current Operating Model
- Review current model to better understand the technology and services impact of moving to the cloud inclusive of creating a cloud center of excellence team (CoE) and documenting the City’s cloud vision and strategy

Create a Citywide Cloud Migration Strategy
- Create service standards, processes, and blueprints to drive efficiencies and mitigate risk - including designing cloud platform(s) architecture.
- Create an overall governance approach of off-premises computing resources including policy-based controls, self-service strategy, and financial management processes
- Estimate migration costs by assembling a complete range of migration activities necessary and aligning expected costs to project phases by selecting migration approach (Refer to Gartner’s cloud decision models in the application portfolio assessment)

Execute Cloud Migration (where appropriate)
- Create application migration plan(s) using data from Gartner’s application portfolio assessment as an educated hypothesis
- Develop and execute cloud communications plan(s)
- Select & engage a technology, system integration, or managed services provider partner to help execute cloud migration (as necessary)
- Monitor and control through established governance policies and processes
Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

- The City’s cloud strategy and adoption framework plan should be unique to the City. The cloud-based policies should apply across departments and agencies and set an enterprise-wide direction.
- Cloud migration also hinges on the specific characteristics that apply to the individual application under consideration. Setting objectives for cloud migration at the application level will enable better review and selection of an alternative. Cloud adoption and legacy modernization strategies will dictate the relative priorities of the goals.

Source: Gartner research
Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

Example Solution Path for Implementing a Cloud Adoption Framework

Understand Cloud Impact
Create a cloud team, assess applications’ viability for the cloud, build a business case, and document your cloud strategy

Define Cloud Foundations
Compare and select cloud providers, which will happen many times for SaaS providers, but fewer times for IaaS/PaaS. This step will occur throughout the cloud initiative

Architect and Mitigate Risk
Creating an architecture that mitigates the risks of cloud is key to successful deployments; additionally, create service standards, processes and blueprints to drive efficiencies

Enable Governance
Build an overall approach to governance of off-premises computing resources including policy-based controls, self-service strategy, and financial management processes

Achieve Operational Excellence
Optimize cloud usage through focused efforts on optimization and automation, and eventually extending these efforts in a multicloud manner

Source: Gartner research
Example Process for Enabling Governance (Cloud)

Establishing governance provides guardrails and guidelines in the decision-making process while also preventing bad outcomes and documenting risk boundaries.

Governance Execution Measures

Suggested guidelines for developing governance principles and measures:

- Be Specific to the enterprise.
- Drive decision making.
- Connect principles to business outcomes.
- Be clear enough that it cannot be misinterpreted
Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

- 54 out of 117 of the City’s current applications currently hosted on-premise, have been found to be viable for near-term shift to the cloud.
- 43 applications fall under the ‘hold off’ category due to low demand, high data sensitivity, and less prevalent usage. These applications should be monitored to assure uninterrupted functionality as they remain on legacy systems.

Public Cloud deployment: Initial Focus - Migrate

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Business Unit</th>
<th>Cloud Deployment</th>
<th>Complexity</th>
<th>TIME Quadrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCM</td>
<td>CDOT</td>
<td>IaaS</td>
<td></td>
<td>Migrate</td>
</tr>
<tr>
<td>E-INVOICING / CDOT PROJECTS</td>
<td>CDOT</td>
<td>class</td>
<td></td>
<td>Migrate</td>
</tr>
<tr>
<td>ELECTRONIC LOBBYIST FILING (ELF)</td>
<td>Board of Ethics</td>
<td>IaaS</td>
<td></td>
<td>Migrate</td>
</tr>
<tr>
<td>EMS ENTERPRISE</td>
<td>DCA</td>
<td>IaaS</td>
<td></td>
<td>Migrate</td>
</tr>
<tr>
<td>METERSAVE</td>
<td>DWM</td>
<td>class</td>
<td>High</td>
<td>Migrate</td>
</tr>
<tr>
<td>ODC OVERTIME TRACKING APPLICATION</td>
<td>CDA</td>
<td>Saas</td>
<td></td>
<td>Migrate</td>
</tr>
<tr>
<td>OVERTIME MANAGEMENT SYSTEM</td>
<td>AIS_non_BolIT</td>
<td>class</td>
<td>Low</td>
<td>Migrate</td>
</tr>
<tr>
<td>PASSAGEPOINT</td>
<td>DWM</td>
<td>Saas</td>
<td>Low</td>
<td>Migrate</td>
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<td>PAYMENT VOUCHER</td>
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<td>Migrate</td>
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<td>P/R</td>
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<td>class</td>
<td>Low</td>
<td>Migrate</td>
</tr>
<tr>
<td>STD PARKING TAX REVENUE</td>
<td>CDA</td>
<td>class</td>
<td>Low</td>
<td>Migrate</td>
</tr>
<tr>
<td>TAX GRANT</td>
<td>Office of the Mayor</td>
<td>class</td>
<td></td>
<td>Migrate</td>
</tr>
<tr>
<td>VOUCHER SYSTEM</td>
<td>CDOT</td>
<td>On-Premise</td>
<td>Low</td>
<td>Migrate</td>
</tr>
</tbody>
</table>
Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

- 54 out of 117 of the City’s current applications currently hosted on-premise, have been found to be viable for near-term shift to the cloud.
- 43 applications fall under the ‘hold off’ category due to low demand, high data sensitivity, and less prevalent usage. These applications should be monitored to assure uninterrupted functionality as they remain on legacy systems.

Public Cloud deployment: Initial Focus – Tolerate

<table>
<thead>
<tr>
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<th>Business Unit</th>
<th>Cloud Deployment</th>
<th>Complexity</th>
<th>TIME Quadrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVERBRIDGE MASS NOTIFICATION</td>
<td>CDA</td>
<td>PaaS</td>
<td>Low</td>
<td>Tolerate</td>
</tr>
<tr>
<td>TRAFFIC COUNT</td>
<td>CDOT</td>
<td>PaaS</td>
<td>Low</td>
<td>Tolerate</td>
</tr>
<tr>
<td>AUTO CR</td>
<td>OIG</td>
<td>IaaS</td>
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</table>

The acronyms of the various cloud deployment options correspond to the following array of options:

- **claas** – container infrastructure as a service, for example Kubernetes
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Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

- 54 out of 117 of the City’s current applications currently hosted on-premise, have been found to be viable for near-term shift to the cloud.
- 43 applications fall under the ‘hold off’ category due to low demand, high data sensitivity, and less prevalent usage. These applications should be monitored to assure uninterrupted functionality as they remain on legacy systems.

Public Cloud deployment: Initial Focus – Invest (1 of 2)

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Business Unit</th>
<th>Cloud Deployment</th>
<th>Complexity</th>
<th>TIME Quadrant</th>
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<td>CDOT</td>
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<td>DSS TRANSFER REQUEST</td>
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<td>CDA, CDOT</td>
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</tbody>
</table>

*The acronyms of the various cloud deployment options correspond to the following array of options*

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Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

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Public Cloud deployment: Initial Focus - Invest (2 of 2)

- *The acronyms of the various cloud deployment options correspond to the following array of options:
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<table>
<thead>
<tr>
<th>Application Name</th>
<th>Business Unit</th>
<th>Cloud Deployment</th>
<th>Complexity</th>
<th>TIME Quadrant</th>
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<tr>
<td>ETTRAKKER</td>
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<td>Invest</td>
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<td>iaaS</td>
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<td>Invest</td>
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<tr>
<td>FREIGHT &amp; TRAFFIC</td>
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<td>Invest</td>
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<td>Low</td>
<td>Invest</td>
</tr>
<tr>
<td>IPI</td>
<td>AIS BotT</td>
<td>iaaS</td>
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<td>Invest</td>
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<td>LOGICAL</td>
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<td>Invest</td>
</tr>
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<td>claaS</td>
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<td>Invest</td>
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<td>SCADA</td>
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<td>USERFUL</td>
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<td>WATER STREAM FAXING</td>
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<td>Invest</td>
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<tr>
<td>FARMERS MARKET</td>
<td>DCAE, AIS BotT</td>
<td>iaaS</td>
<td>Invest</td>
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</tr>
</tbody>
</table>
Goal 3: Transform City Infrastructure
Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

- 54 out of 117 of the City’s current applications currently hosted on-premise, have been found to be viable for near-term shift to the cloud.
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Public Cloud deployment: Initial Focus - Eliminate

Application Name          Business Unit  Cloud Deployment  Complexity  TIME Quadrant
FACILITIES DATABASE       AIS_non_BoIT    claaS            Low          Eliminate
JUMPING JACK             OCASE           PaaaS             Eliminate
CHICAGO BUSINESS DIRECT  BACP            PaaaS             Eliminate
LEARNING MANAGEMENT SYSTEM DHR           SaaS            Eliminate

The acronyms of the various cloud deployment options correspond to the following array of options:
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- PaPaS – Platform as a service, for example Pega
- SaaS – Software as a service, for example Salesforce

Legend
- Color indicates the potential Cloud deployment option
- Refactor/Revise
- Initial Focus
- Don’t Migrate - Yet
- Hold Off
- Business Impact
- Technical Fit
- Estimated Migration Complexity
- Low, Medium, High, Very High

54 out of 117 of the City’s current applications currently hosted on-premise, have been found to be viable for near-term shift to the cloud. 43 applications fall under the ‘hold off’ category due to low demand, high data sensitivity, and less prevalent usage. These applications should be monitored to assure uninterrupted functionality as they remain on legacy systems.
Goal 3.1: Modernize Application Portfolio and Supporting Technologies

- 3.1.1 – Build a Dedicated Application Modernization Project Team
- 3.1.2 – Improve Application Portfolio Governance
- 3.1.3 – Right Size Application Portfolio
- 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support
- 3.1.5 – Create Detailed Plan for Modernization Efforts & Streamlining Application Portfolio Over the Long Term
### Goal 3: Transform City Infrastructure

#### Initiative: 3.1.5 – Create Detailed Plan for Modernization Efforts & Streamlining Application Portfolio Over the Long Term

#### Overview

- The modernization of the City’s applications and supporting technologies will build upon the City’s current initiatives by further providing actionable steps for a technology refresh execution plan to enable modernization and manage poor technical application condition that exists across the application portfolio.

- Gartner’s assessment of the City’s application portfolio found poor technical condition partially stems from legacy databases (23 applications), operating systems (18 applications) & programming languages (22 applications) that are several releases behind the current vendor supported versions.

- With this IT refresh plan, the City can plan for and transition out old technologies, with assistance from current vendor ecosystem, on a continuous basis as the modernization progresses.

#### Key Activities

<table>
<thead>
<tr>
<th>Review and Categorize Application Technical Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identify scope of applications with poor technical condition (start by referring to Gartner’s application portfolio assessment for additional details)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop Standard for Technical Refreshes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identify key process stakeholders and clearly define responsibilities for various stakeholders involved</td>
</tr>
<tr>
<td></td>
<td>Continuously assess technical condition, through a clear taxonomy of nonfunctional requirements (reliability, usability, platform risk (e.g., databases, operating systems, programming languages), maintainability, portability, security, and compatibility)</td>
</tr>
<tr>
<td></td>
<td>Increase transparency by reporting costs &amp; risks of technical condition in applications.</td>
</tr>
<tr>
<td></td>
<td>Create a technical refresh template (including criteria for documenting impacts from a system user and compliance perspective, criteria for documenting technology dependencies, potential solutions)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Develop and Execute Technology Refresh Roadmap</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Document short-term and long-term priorities for application modernization; identify new opportunities for modernization as application portfolio governance and related data takes hold</td>
</tr>
<tr>
<td></td>
<td>Refine and update technical refresh template to address findings from Activity 2</td>
</tr>
</tbody>
</table>

#### Key Artifacts Delivered

- Tech Refresh Model
- Tech Refresh Roadmap factoring in key vendor roadmaps

#### Execution Guidance and Assumptions

- Technical condition remediation decisions should be made in close conjunction with any application retirement plans as they are solidified
- Dated versions of Oracle, MySQL, Microsoft Access and SQL Server databases (4-10 versions behind current release)
- Obsolete versions of Red Hat Linux, Microsoft Windows Server and Oracle Solaris operating systems (3-19 versions behind)
- Legacy versions of Java, PHP, Javascript and C# languages (3-9 versions behind)

#### Key Dependencies

- N/A

#### Complexity

- Medium

#### Cost

- $1M+

#### Core Duration

- 4 Months + ongoing execution

#### Owner

- CTO

#### Execution Team

- AIS
- Enterprise Architect
- Departments
The modernization of the City’s applications portfolio is a very complex process that will require a high level of City staff hours and vendor support to complete.

In order to provide the City guidance on the potential structure and sequence for the modernization process, the project team evaluated the application data provided by City departments and grouped the applications based on common attributes.

A preliminary modernization approach for each grouping of applications was defined as summarized below. The implementation of these modernization approaches will be expensive and will have significant citywide impacts. Prior to deploying these modernization efforts, the City should retire applications that provide little business value and leverage cloud-based, market-available solutions in lieu of custom systems wherever possible. These efforts must be well coordinated and integrated to minimize risks to the City’s ongoing operations.

- **Rehost** ("lift and shift" or redeploy): Migrate the application to an alternate technical infrastructure (such as cloud) in order to remediate underlying technical performance issues. This migration process should have minimal impact on the end user.
- **Revise**: Revise the application code in order to improve the maintainability and sustainability of the application. The updates to the code should have minimal impact on the end user.
- **Rearchitect** (re-engineer): Materially revise the code to enable the end user to better use the features and functions available in the application.
- **Replace**: Replace the application entirely by working with the City’s business owners to define new requirements and implement new solutions. The replacement solutions should leverage market-available solutions or platforms in lieu of custom development. “Low code” options (i.e., applications that can be configured to meet end user needs) should be exploited wherever possible.
- **Continuous Modernization**: The City has already initiated a Cloud-First approach for new applications. This modernization effort reinforces and complements the City’s approach by updating and maintaining the application to best leverage features and functions provided within the application or by the software vendor.

### Modernization Approach

<table>
<thead>
<tr>
<th>Modernization Approach</th>
<th># of Applications</th>
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<tr>
<td>Rehost</td>
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<td>Revise</td>
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<td>Rearchitect</td>
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<tr>
<td>Rebuild</td>
<td>17</td>
</tr>
<tr>
<td>Replace</td>
<td>43</td>
</tr>
<tr>
<td>Continuous Modernization</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>81</td>
</tr>
</tbody>
</table>

# of applications based on the data provided by City departments during the Current State Assessment
Goal 3: Transform City Infrastructure

- 3.1 – Modernize application portfolio and supporting technologies
- 3.2 – Strengthen Technology Infrastructure, Integration & Security
A higher reliance on Outsourcing is generally aligned with higher levels of spending on vendor management which would appear in IT Management, Finance and Administration. Chicago, however, has a much lower percentage of spending in this area.

- Where higher percentages of spending on Data Centers and Applications Development and Support services are for Outsourced services, there may be an opportunity to improve vendor management maturity.

At the same time, the City has a much lower percentage of spending on End-User Computing and IT Service Desk that could impact user satisfaction and potentially productivity.

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**Strategic Planning Context (summary finding from Current State Assessment)**

City of Chicago spends significant funds on Data Centers which require constant maintenance and support. Upgrades to the infrastructure hardware are dependent on the applications that rely on the hardware to be able to operate on the new hardware. In turn, upgrades to the applications may require new hardware which makes existing equipment obsolete. A public cloud provides an alternative mechanism for hosting applications which de-couples the hardware from the software and provides for more frequent upgrades with reduced complexity and lower risk.
Goal 3.2: Strengthen Technology Infrastructure, Integration & Security

- 3.2.1 – Develop A Hybrid Multi-Cloud Infrastructure Strategy
## Goal 3: Transform City Infrastructure
### Initiative: 3.2.1 – Develop A Hybrid Multi-Cloud Infrastructure Strategy

#### Overview
- This initiative focuses on developing a Hybrid Multi-Cloud Strategy that encompasses the City’s on-premises data centers and public cloud environment. It complements the apps modernization strategy and initiative 3.1.3 migrate to the cloud.
- The primary goal is to shift spend away from maintaining capital intensive data centers to operationally sound hybrid cloud implementation which provides for “evergreen” hardware which is secure, has inbuilt high availability and disaster recovery capabilities and can scale up or down as per the needs of City residents.

#### Key Activities

<table>
<thead>
<tr>
<th>Description</th>
<th>Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish baseline &amp; target state IT infrastructure requirements</td>
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<tr>
<td>Define Cloud &amp; Data Center strategic hosting alternatives</td>
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</tr>
<tr>
<td>Develop reference architecture</td>
<td></td>
</tr>
<tr>
<td>Evaluate and select “Best Fit” alternative</td>
<td></td>
</tr>
<tr>
<td>Execute</td>
<td></td>
</tr>
</tbody>
</table>

#### Key Artifacts Delivered
- Viable list of data center and cloud infrastructure target state alternatives
- A reference architecture that identifies core tooling components to effectively manage the diverse and complex attributes of a hybrid, multi-cloud environment
- A cloud governance framework with insight regarding best practices to align governance and skills to the selected strategy
- Cloud and data center hosting strategy implementation roadmap with supporting financials

#### Execution Guidance and Assumptions
- ~3 months to develop a comprehensive hybrid multi-cloud strategy
- Highly recommend partnering with an external consulting firm to assist in the development of a vendor agnostic cloud and data center infrastructure hosting strategy

#### Key Dependencies
- Goal 3.1.3: Migrate to Cloud timeframe

#### Execution Team
- IT Infrastructure leaders for network, storage & facilities, and Enterprise Architecture

#### Key Dependencies
- Goal 3.1.3: Migrate to Cloud timeframe

#### Complexity | Cost
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td>$250K-$500K</td>
</tr>
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</table>

#### Core Duration
- ~3 Months
Goal 4: Put People at the Center

- 4.1, 4.2 – Build a Digital Services Team and Playbook
- 4.3 – Use Resident Engagement to Identify / Prioritize Digital Services
- 4.4 – Incrementally Deliver Public Services, Building Upon Strategic Technology Platforms
Goal 4: Put People at the Center

Strategic Planning Context

The City of Chicago is using technology and other methods to increase its engagement with residents and businesses in order to better understand and address their needs.

For example:

- The City conducted an extensive education and listening campaign to solicit feedback and expand usage of CHI 311.
- To support budget development, the City hosted virtual budget town halls, livestreamed on Facebook, and launched an online survey receiving feedback from over 38,000 Chicagoans on the services that warrant City investment.
- The City expanded citywide census response by launching a website, conducting complex data analysis, and conducting door-to-door outreach in low count areas using a WiFi-enabled van and team members with iPads.
- The City has initiated a resident IT engagement survey in order to better understand the extent to which Chicagoans use technology to access City services.
- As an ongoing capability, the City has invested in communication management tools to assist departments in keeping a pulse on public sentiment, including the ability to mine social media data.

Communications Management

- Social Media Management
  - Real-time, geographic-based monitoring
- Social Insights
  - Pinpoint catalysts, events, and more
- Public Awareness
  - Broad communications, fast
- Automated Communications
  - Keep hot topics and need to know information readily accessible
- Flag Social Posts
  - Follow up or case creation

Exhibit 4.1 – Examples of City of Chicago Communications Management Capabilities

Exhibit 4.12 – Summary of Community Engagement Methods to Support 311 Outreach
Goal 4: Put People at the Center

Strategic Planning Context (continued)

The City has also made progress in translating these insights into digitally-delivered services through the establishment of its Digital Design Office in 2018. In addition to assisting with the launch of CHI 311 and creating a new municipal brand, this office has:

- Enabled the rapid launch of the microsites necessary to help keep Chicagoans safe and informed throughout the COVID-19 pandemic.
- Provided technical assistance and visual design support for the Sustain Chicago initiative.
- Engaged with COPA to provide resources to help them build their desired user experience within an existing software system.
- Worked with the Chicago Department of Public Health to include user experience (UX) activities as part of their work process in order to increase engagement & improve usability.

Unfortunately, while progress has been made, the City has been under-resourced for achieving its objectives – even more so given the recent departure of its AIS BOIT Deputy for software development and design. The development of resident-centric digital services entails establishing the necessary team, tools, standards, and technology capabilities to develop these services and sustainably improve them over time.

The focus of this section of the IT Strategic Plan is to identify the steps for building upon the City’s previous and current efforts to establish the necessary capacity and capabilities for digital public services development.
### Goal 4: Put People at the Center

**Initiative: 4.1, 4.2 – Build A Digital Services Team and Playbook (1 of 5)**

#### Overview

Governments who are making the most progress in developing digital public services are those with teams who use processes and approaches established by the US Digital Service (USDS) and others as inspiration while simultaneously tackling the issues associated with a lack of integration across back-end systems and operational data. Governments need to address both the front-end user experience and modernization of its aging legacy infrastructure in order to achieve a seamless user experience that fully addresses resident needs.

This means that Chicago should assure that its Digital Services Team works in close collaboration with its Central IT colleagues within AIS, addresses the priority needs as defined by the public and City departments, and aligns its efforts with the City’s IT modernization efforts.

#### Execution Guidance and Assumptions

- Work with HR to plan staffing and training approaches for building up the Digital Services Team

#### Key Activities

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1. **Identify Digital Services Leadership and Team** | - Plan and implement recruiting efforts. As a peer example, the City and County of San Francisco has a team of 20+ staff, including user experience (UX) designers, customer experience specialists, web developers, content managers, and product managers  
- Other governments have built their in-house team over time by obtaining vendor services or bringing in IT professionals for 1 to 2 year stints (i.e., tours of civic duty). This approach is used by Colorado  
- Lastly, digital services are designed and implemented through multi-disciplinary teams from both business and IT. This extended team structure must also be accommodated as part of the planning process (See 4.1 Stand Up Digital Services Team and Playbook (2 of 5 and 3 of 5)) |
| 2. **Develop Digital Services Playbook** | - Develop the Digital Services Playbook based on digital best practices while incorporating standards, tools, and activities aligned with the City’s overall modernization effort (See 4.1 Stand Up Digital Services Team and Playbook (3 of 5 and 4 of 5) for examples of the components for the playbook) |
| 3. **Determine Prioritization / Oversight** | - Determine means for prioritizing investments, providing oversight and measuring progress on Digital Services initiatives given the more likely use of agile delivery methods vs. waterfall approaches (See 4.1 Stand Up Digital Services Team and Playbook (5 of 5)) |

#### Key Dependencies

- Goal 1: Reimagine Workforce and Processes  
- Goal 2: Leverage Data to Spur Innovation  
- Goal 3: Transform City Infrastructure  
- Goal 5: Collaborate to Innovate  
- Goal 6: Empower to Inspire

#### Key Artifacts Delivered

- Digital Services Playbook

---

**Timeframe**

- 0 – 6 months, & 12 – 18 months

**One time Cost**

- No Cost – $150k (could use non-profit support)

**Owner**

- AIS Executive

**Core Duration**

- 4 Months

**Complexity**

- Medium
Goal 4: Put People at the Center
Initiative: 4.1, 4.2 – Build A Digital Services Team and Playbook (2 of 5)

Examples - Local Government Digital Services Teams

City & County of San Francisco – In-House Team

The San Francisco Digital Services Team is transforming how residents interact with the City. We’re doing this by building services designed around the people that use them.

Led by the Chief Digital Services Officer, our team includes:
- product managers
- designers
- service designers
- user researchers
- developers
- content strategists

We believe in four principles:
1. Put the needs of residents first
2. Focus on delivery and outcomes over process
3. Create an agile and data-driven culture
4. Make City services accessible to everyone.

We have some exciting and high-profile products in our pipeline. We’re re-building the city’s website from the ground up. We’re also working on affordable housing applications and permitting new cannabis businesses.

State of Colorado – Tours of Duty

How Colorado turned an idea into a real digital services agency

Written by Benjamin Freed
FEB 18, 2020 | STATESCOOP

Colorado was not the first state to create an office dedicated to building out its digital-government services by recruiting civic-minded techies. Agencies in California and Georgia have been building more “user-centric” online services, websites and forms for years, but the Colorado Digital Service that Gov. Jared Polis announced last year may be of a different breed.

Rather than looking for programmers and software engineers to join government for the long haul, Colorado’s new venture is recruiting technologists who may just want to take a break from the private sector and lend their talents to the state for a year or two. It’s a model popularized by the U.S. Digital Service, the White House technology unit that sprouted up in 2014 after the infamously botched launch of HealthCare.gov.

Polis recalled observing how, as a member of Congress at the time, the USDA’s initial team took lessons from HealthCare.gov and applied it to other federal agencies. And after he was elected governor in 2018, he sought to do something similar for his home state.
Goal 4: Put People at the Center
Initiative: 4.1, 4.2 – Build A Digital Services Team and Playbook (3 of 5)

The following diagram illustrates the potential structure of a Digital Services team and components of a Digital Services Playbook. The playbook can be developed in an agile fashion over time based on the City’s practical experience and lessons learned in delivering the services.

**Digital Services Team Structure and Playbook Components**

**Digital Services Team**
- Chief Digital Officer
- **In-House Team** (pending approach)
  - Developers
  - Web Designers
  - CX Specialists
  - UX Designers
- **External Partners** (pending approach)
  - IT Service Providers
  - “Tour of Duty” Members
  - Higher Ed Collaborators
  - Non-Profit Support (USDS, Bloomberg Philanthropies)

**Stakeholder Groups**
- City Departments
- City Council
- Residents
- Businesses

**Digital Services Playbook Components**
- **User / Field Research** (resident engagement tools, surveys, persona / journey mapping, opportunity definition / prioritization)
- **Accessibility, Content, Language Standards** (compliance with WCAG 2.0 accessibility guidelines, style guides, content management, multi-lingual capabilities)
- **Technology Stack** (preferred platforms (e.g., Salesforce), hosting, data layer, digital channels)
- **Security** (digital identity / authentication technologies, data privacy and protection)
- **Integration** (APIs, data integration)
- **Deployment Methodologies** (human-centered design, prototyping, agile / hybrid, automated testing, software engineering practices, roadmap development)
- **Team Building** (in-house positions, external support)
- **Operational Processes** (product portfolio management (i.e., manage digital services as “products” for continuous improvement), vendor management, procurement, KPI definition / measurement, governance)
Extensive Service Design Model from British Columbia (excerpt from Service Design Playbook)
Goal 4: Put People at the Center
Initiative: 4.1, 4.2–Build A Digital Services Team and Playbook (5 of 5)

Digital Services Governance and Oversight Considerations

The City plans to re-launch its Technology Strategy Group (TSG) and associated decision-making bodies, such as the IT Governance Board (ITGB). In standing up its Digital Services Team, the City must determine the means for prioritizing investments, providing oversight and measuring progress on Digital Services initiatives given the more likely use of agile delivery methods that deliver value iteratively over time.

Factors to consider in defining the governance and oversight processes:

- **Success Measurement:** KPIs must measure customer satisfaction in addition to project completion % and budget overruns. Additionally, they need to accommodate the iterative nature of delivery (digital services could be delivered as “minimum viable product” with features added over time).

- **Expanded Accountable Parties:** initiatives will be delivered through expanded and iterative levels of participation from the public, city departments and others; thereby, making accountability for outcomes more challenging to define.

Where do the Digital Services Team and initiatives fit in?

Source: OIG illustration based on City of Chicago Information Technology Governance Policy.
Goal 4: Put People at the Center

- 4.1, 4.2 – Build a Digital Services Team and Playbook
- 4.3 – Use Resident Engagement to Identify / Prioritize Digital Services
- 4.4 – Incrementally Deliver Public Services, Building Upon Strategic Technology Platforms
## Goal 4: Put People at the Center

### Initiative: 4.3 – Use Resident Engagement to Identify / Prioritize Digital Services (1 of 3)

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conduct Resident Outreach on Digital Services</td>
<td>The City can conduct deep dive discussion on the digital services of most interest and value to residents and businesses. The insights obtained from the resident IT engagement survey can be used as the starting point for real-time discussions during the town halls.</td>
</tr>
<tr>
<td>2. Determine Priority Digital Services for Investment</td>
<td>The City can conduct analysis on digital services investment similar to that conducted to inform budget investment. Given that the public may need more awareness and education on what digital public services are, this discussion may be most effective real-time. In alignment with the City’s goals for the equitable distribution of services, focused outreach can be conducted in underserved neighborhoods. (See 4.2 – Use Resident Engagement to Identify / Prioritize Digital Services (2 of 3) for a sample question that can be modeled for digital services investment)</td>
</tr>
<tr>
<td>3. Design / Develop Resident Portal</td>
<td>During the Current State Assessment, City departments identified the development of a resident portal as a means for enabling residents and businesses to do more self-service, providing a centralized hub for communications and intake, and presenting a more seamless user experience through the availability of data on the resident across multiple departments. This idea can be explored real-time with the public during the aforementioned sessions. (See 4.2 – Use Resident Engagement to Identify / Prioritize Digital Services (3 of 3) for an example of a citizen portal from State of Utah)</td>
</tr>
</tbody>
</table>

### Overview

The City has made a number of investments related to resident engagement, including education and listening campaign to solicit feedback and expand usage of CHI 311, online surveys to solicit input on the City’s budget, resident IT engagement survey, and communication tools.

The purpose of this initiative is to leverage and extend the use of these tools to inform the identification and prioritization of the digital services to be designed and developed.
Expand Budget Survey / Outreach to Include Discussion on Digital Services

The City asks direct questions about the City’s budget should be invested. A similar set of questions can be posed to solicit resident feedback on digital public services. Given that the public may need more education on what digital public services are, these questions may be best handled during real-time discussions. Based on the responses provided by the public below, Chicagoans may be interested in more services related to Community Services and Public Health.

The areas where Chicagoans felt the City should invest more funding are: Community Services and Public Health.
Example of Citizen Portal from State of Utah

The State of Utah is developing a personalized portal concept wherein the resident has access to personal records, all government applications completed or in progress, and a transaction history.
Goal 4: Put People at the Center

- 4.1, 4.2 – Build a Digital Services Team and Playbook
- 4.3 – Use Resident Engagement to Identify / Prioritize Digital Services
- 4.4 – Incrementally Deliver Public Services, Building Upon Strategic Technology Platforms
Goal 4: Put People at the Center
Initiative: 4.4 – Incrementally Deliver Public Services, Building Upon Strategic Technology Platforms (1 of 2)

### Overview

Based on the priorities identified during the public outreach, the City would design and deliver the digital services using the methods and approaches identified in its Digital Services Playbook. The definition of KPIs for each digital service (e.g., usage in underserved communities) will help enable the City measure progress on its strategic goals, such as the equitable distribution of services.

### Key Activities and Description

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conduct User / Field Research for Scoping High Priority Digital Services</td>
<td>Conduct the appropriate research to vet and scope the digital services. Depending upon the scope of the services, this research can be conducted at a granular level (e.g., user journey mapping) or at a field level (e.g., domain-specific use cases)</td>
</tr>
<tr>
<td>2. Update Digital Services Backlog and Roadmap</td>
<td>Obtain the necessary City approvals, add the digital services to the development backlog, identify / assign resources, and update the roadmap for delivery accordingly</td>
</tr>
</tbody>
</table>
| 3. Use Platform Approach to Iteratively Design / Deliver Digital Services | Where possible, the City should explore the use of a core platform for building new services and to which existing services can be migrated and enhanced. Given that the City has extensively invested in Salesforce as its platform for CHI 311, Salesforce can serve as the primary platform for resident-facing digital services. The use of a core platform can also help reduce application sprawl and improve the sustainability of its IT footprint  
  An analysis of Salesforce capabilities and the City’s existing constituent-facing applications can be a starting point for developing these services. (*See 4.3 – Deliver Services Iteratively, Building Upon Strategic Technology Platforms (2 of 2)*) |

### Execution Guidance and Assumptions

- Recommend that some Digital Services Playbook be defined to support the design / development process. The playbook can be developed in an agile fashion over time.
- To assure that that the City’s services are continually improved, the City could consider a transition to a product management approach wherein the services are categorized and managed as a portfolio of products.

### Key Dependencies

- Goal 1: Reimagine Workforce and Processes
- Goal 2: Leverage Data to Spur Innovation
- Goal 3: Transform City Infrastructure
- Goal 7: Ensure Equity & Accessibility

### Key Artifacts Delivered

- Designed / Delivered Digital Public Services

### Execution Team

- AIS
- City Departments
- Ongoing 10 – 15 FTEs (part of Digital services team)

### Timeframe

- After 18 months

### Complexity

- Medium

### One time Cost

- Varies based on prioritized service

### Ongoing Cost

- $5M - $10M

### Cost

- Varies based on prioritized service

### Core Duration

- TBD
Goal 4: Put People at the Center
Initiative: 4.4 – Deliver Services Iteratively, Building Upon Strategic Technology Platforms (2 of 2)

Summary of the City’s Current Constituent-Facing Applications

Given that the City has extensively invested in Salesforce as its platform for CHI 311, Salesforce can serve as the primary platform for resident-facing digital services. An analysis of Salesforce capabilities and the City’s existing constituent-facing applications can be a starting point for planning the development of these services. The following is a summary diagram of the number of constituent-facing applications as provided by City departments during the Current State Assessment.
Goal 5: Collaborate to Innovate

- 5.1 – Identify Vendor Services Needed to Support Modernization
- 5.2 – Prioritize and Define Scope for Vendor Services
- 5.3 – Procure Necessary Services
Goal 5: Collaborate to Innovate

Strategic Planning Context
(summary finding from Current State Assessment)

The City leverages vendors to help mitigate its shortage of IT talent and obtain the resources it needs to develop / maintain applications and support its technology infrastructure.

- Currently, the City spends over 50% of its IT budget on Outsourcing and Cloud Service Providers. As a percentage of its IT Spend, this is allocation is higher than the percentage allocated by peer governments.
- Additionally, the City relies heavily on vendors to implement IT projects (i.e., 48% of the IT projects completed or in progress from 2017 through 2020 include services provided by external partners).

The City experiences several strategic benefits from outsourcing its IT functions – including improved operational continuity, economies of scale, and access to broader set of technologies.

As a focus area for the 2021 IT Strategic Plan, the City seeks options for increasing the value it receives from outsourcing and securing the vendor services needed to support enterprise-wide modernization efforts.
Goal 5: Collaborate to Innovate
Initiative: 5.1 – Identify Vendor Services Needed to Support Modernization

Overview
- The City does not have the capacity to support modernization of its technology landscape and must rely on the vendor community to support this mission, particularly for goals 2 and 3.
- The City should identify and compile a list of the vendor services needed to support Goals 2 and 3. For example, the initiatives identified in these goals include activities such as the definition of a data governance framework and a cloud migration strategy. The City needs to determine if it requires vendor support for these efforts.

| Timeframe | 6 – 12 months |
| Complexity | Medium |
| Onetime Cost | NA |
| Ongoing Cost | NA |
| Owner | AIS Executive |
| Core Duration | 5 Months |

Key Activities

1. Identify Vendor Services Required to Support Modernization

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share the Current State Assessment findings and details from the IT Strategic Planning process with key City leaders, interested members of City Council and the appropriate representatives within the City</td>
</tr>
<tr>
<td>Identify the most promising initiatives for vendor support</td>
</tr>
</tbody>
</table>

Execution Team
- AIS

Key Dependencies
- Goal 2: Leverage Data to Spur Innovation
- Goal 3: Transform City Infrastructure
- Goal 6: Ensure Equity & Accessibility

Execution Guidance and Assumptions
- Coordinate analysis with Business Relationship Managers as needed to understand department needs

Key Artifacts Delivered
- Identified List of Vendor Services
Goal 5: Collaborate to Innovate

- 5.1 – Identify Vendor Services Needed to Support Modernization
- 5.2 – Prioritize and Define Scope for Vendor Services
- 5.3 – Procure Necessary Services
Goal 5: Collaborate to Innovate

5.2 – Prioritize and Define Scope for Vendor Services

Overview

- The City of Chicago has outsourced and/or leveraged IT service providers to support many of its IT functions, including applications development, GIS, infrastructure design and implementation, security, etc. In doing so, the City has been able to secure several strategic benefits, including: improved operational continuity, economies of scale, and broader exposure to various technologies. (see next slide for summary of partners and services delivered)

- The intent of this initiative is to explore options for better leveraging the capabilities and capacity of the City’s outsourcing partners and other firms who provide deliverables-based IT support.

- The City should determine creative means for improving collaboration with its IT vendor-partners through innovative contracting models and outcome-based contracting.

- Additionally, the City should pool the resources of the City with those of vendor-partners in order to reduce redundancies while transferring execution risk.

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1. Prioritize Vendor Capabilities / Capacity to Support Modernization | ▪ Review vendor capabilities / capacity against the modernization approaches as stated for Goal 2: Leverage Data to Spur Innovation and Goal 3: Transform City Infrastructure (e.g., if the City opts to upgrade Banner vs. replace the solution)  
▪ Identify additional services that can be provided to support modernization (e.g., more automation to help reduce manual processes)  
▪ Review and confirm potential vendor services to support modernization with the business owners of the City’s applications and IT staff |
The City’s outsourcing model (i.e., deliverables-based IT support) is comprised of both global and niche providers. Many of the services provided (e.g., App Development, Infrastructure Design, GIS, Security, Database Development) are capabilities that are critical for supporting the City’s modernization efforts.

External partners’ capabilities and capacity should be considered as the City implements the initiatives to support Goal 3: Transform the City’s Infrastructure.

Exhibit 5.3 – Current Outsourcing / IT Service Providers and their Corresponding Services

<table>
<thead>
<tr>
<th>Service Categories</th>
<th>Carminati</th>
<th>Catalyst</th>
<th>Clarity</th>
<th>CAI</th>
<th>EKI</th>
<th>Infor</th>
<th>NTT Data</th>
<th>SDI</th>
<th>Senryo</th>
<th>SLG Innovation</th>
<th>Unison</th>
<th>Urban GIS</th>
<th>W4Sight</th>
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</thead>
<tbody>
<tr>
<td>1 – App Develop</td>
<td>✔</td>
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<td>✔</td>
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<td>2 - GIS</td>
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<td>3 – Database Dev</td>
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<td>4 – Infrastructure Design</td>
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<tr>
<td>5 – Mgt Consulting</td>
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<tr>
<td>6 – Infrastructure Dev</td>
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<tr>
<td>7 – IT Consulting</td>
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<tr>
<td>8 - Security</td>
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</tbody>
</table>

App Support – Enterprise Apps

Airports – App Support ✔

Airports – Security Ops

Airports – Public Address ✔

Airports – Finance Services ✔

Airports - Concessions ✔

Water Mgmt / Billing / Customer Service

Hansen 8 License & Support ✔

Customer Service / Call Center ✔

Total Contract Value (2017 – 2020) $4.8M $27.4M $27.1M $52.6M $18.0M $23.6M $22.9M $92.8M $308K $2.5M $34.9M $259K $622K
Goal 5: Collaborate to Innovate

- 5.1 – Identify Vendor Services Needed to Support Modernization
- 5.2 – Prioritize and Define Scope for Vendor Services
- 5.3 – Procure Necessary Services
### Goal 5: Collaborate to Innovate
#### 5.3 – Procure Necessary Services

**Overview**
- Once 5.1 and 5.2 are completed, the City must identify and implement the appropriate procurement processes for obtaining the vendor services. These processes could include: facilitating Industry Day Workshops, issuing task orders for certified vendors, and/or releasing Requests for Information (RFI) or Requests for Proposal (RFP).

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Select and Implement Procurement Process</td>
<td>Industry Day Workshops: This method could be used to inform the vendor community of the modernization efforts that are planned and advise them to await future solicitations</td>
</tr>
<tr>
<td></td>
<td>Task Orders: This method could be used to solicit services from vendor already certified by the City. This can be a faster approach for securing vendor service for engagements with a narrow scope and targeted set of deliverables (e.g., cloud migration strategy)</td>
</tr>
<tr>
<td></td>
<td>Request for Information (RFI): This method could be used to solicit solution ideas from vendors in response to a broad set of requirements. The results from the RFI could help the City develop the requirements to include in an RFP</td>
</tr>
<tr>
<td></td>
<td>The City can also consider leveraging hybrid of RFI (such as the RFI2 from the State of California as an agile procurement option)</td>
</tr>
<tr>
<td></td>
<td>Request for Proposal (RFP): This method could be used to solicit cost and effort from the vendor community in response to specific requirements</td>
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<tr>
<td></td>
<td>When developing an RFP for obtaining long-term vendor services (e.g., outsourcing re-bid), some organizations are seeking broader services beyond technical support, such as: process improvement through automation, expanded business intelligence, and an enhanced customer experience</td>
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<tr>
<td></td>
<td>Other organizations are seeking increased vendor investments, such as: innovation fund matching, local jobs and apprenticeships, and the funding of new major initiatives</td>
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<tr>
<td></td>
<td>All the aforementioned options could be considered by Chicago in order to increase the value derived from outsourcing or long-term support contracts</td>
</tr>
</tbody>
</table>

**Execution Guidance and Assumptions**
- Many of the services provided (e.g., App Development, Infrastructure Design, GIS, Security, Database Development) are capabilities that are critical for supporting the City’s modernization efforts
- The City should coordinate modernization plans supporting Goal 2: Leverage Data to Spur Innovation and Goal 3: Transform City Infrastructure with the vendor partner analysis to be conducted as part of this initiative

**Execution Team**
- AIS
- City Departments (Business Owners for Applications)
- Procurement Services

**Key Dependencies**
- Goal 2: Leverage Data to Spur Innovation
- Goal 3: Transform City Infrastructure

**Key Artifacts Delivered**
- Outsourcing / IT Service Provider Capabilities & Capacity Analysis

**Timeframe**
- 6 – 12 months

**Complexity**
- Medium

**Onetime Cost**
- NA

**Ongoing Cost**
- NA

**Owner**
- AIS Executive

**Core Duration**
- 6 - 8 Months
<table>
<thead>
<tr>
<th>Federal Government</th>
<th>State Government</th>
<th>Local Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Department of Health Services (DHS) hosts meetings with industry representatives to discuss agency-wide program objectives and strategies at their &quot;Strategic Industry Conversation&quot; events.</td>
<td><strong>State of California</strong> designed the RFI2 (Request for Innovative Ideas) through which the State asks innovators to design solutions to its most complex problems. The RFI2 process is made up of two phases: 1. The State develops and issues a problem statement, discusses potential solutions with service providers, and convenes a panel of subject matter experts to advise the State in evaluating the RFI2 responses. 2. Once selected, the solution providers will partner with the State to further understand and define the State’s requirements and business needs, build working-solution prototypes, conduct demonstrations, and provide other necessary responses to the State. The State will observe and evaluate the working solutions to award contract(s) based on these working-solutions evaluations.</td>
<td><strong>County of Los Angeles</strong> leverages a 4 step process for soliciting solutions (e.g., the County’s homeless services challenge which solicited ideas in four areas: Housing, Data, Customer Empowerment, Operations): 1. Strategic Workshops – convened academia, County subject matter experts and industry experts to identify the focus areas for potential solutions and the associated requirements 2. RFI – issued RFI as a “call to action” for proposals 3. Innovation Forum – provided opportunity for County experts and vendor community to vet potential ideas prior to RFI response 4. Launch Cohort – evaluated responses and launched initial set of projects.</td>
</tr>
<tr>
<td><strong>Examples of Vendor Outreach Approaches and RFI Processes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source: &quot;Myth-Busting #4 – Strengthening Engagement with Industry Partners through Innovative Business Practices&quot;</td>
<td></td>
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</tr>
</tbody>
</table>
Goal 6: Empower & Inspire a capable and engaged IT workforce

- 6.1 – Refresh Position Titles to Support the City’s IT Modernization Initiatives
- 6.2 – Recruit High Priority IT Lead / Staff Positions
- 6.3 – Update IT Training Program to Address Skills Gaps
- 6.4 – Establish Succession Plan to Mitigate Retirement Risks
Goal 6: Empower & Inspire

Strategic Planning Context (summary finding from Current State Assessment)

The City has a highly committed and tenured IT workforce (32% of staff have a 20+ year tenure). While the City’s proficiency in Information Management and Information Security is higher than peers, overall IT skills proficiency for the City’s IT staff is slightly below the average level reported by peer governments. To prevent falling further behind, the City should increase training in the emerging technologies/competencies necessary to build a digitally-empowered workforce for the future (e.g., cloud, data science, user-centered design). Plans for upskilling the City’s in-house workforce and succession planning must be coordinated with technology modernization efforts and align with the skills provided by outsourcing partners/service providers in order to reduce redundancies. A refresh of the City’s antiquated position titles is necessary in order to attract qualified talent and to align with the future technology direction of the City.

Exhibit 6.1 – Key Skill Gaps

Skills: Bottom 20 Skills

<table>
<thead>
<tr>
<th>Skill Category – Sub Category</th>
<th>Skills</th>
<th>Number of Selections</th>
<th>% of 4 &amp; 5 Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture - Cloud Architecture</td>
<td>Cloud Storage</td>
<td>21</td>
<td>0%</td>
</tr>
<tr>
<td>Infrastructure &amp; Operations - Cloud Platforms</td>
<td>Google Cloud</td>
<td>19</td>
<td>8%</td>
</tr>
<tr>
<td>Architecture - Cloud Architecture</td>
<td>Cloud Security</td>
<td>18</td>
<td>6%</td>
</tr>
<tr>
<td>Architecture - Cloud Architecture</td>
<td>Cloud Networking</td>
<td>16</td>
<td>6%</td>
</tr>
<tr>
<td>Applications Development - Languages/Frameworks</td>
<td>XML</td>
<td>24</td>
<td>8%</td>
</tr>
<tr>
<td>Applications Development - Design</td>
<td>Mobile Design</td>
<td>22</td>
<td>8%</td>
</tr>
<tr>
<td>Applications Development - Languages/Frameworks</td>
<td>C++</td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>Infrastructure &amp; Operations - Enterprise Networking</td>
<td>VPN (VPNs, IPsec, GRE/IPv6/IPv4, VRFs, Site-to-Site)</td>
<td>28</td>
<td>11%</td>
</tr>
<tr>
<td>Applications Development - Development</td>
<td>Role-based Access Control (RBAC)</td>
<td>18</td>
<td>11%</td>
</tr>
<tr>
<td>Applications Development - User Experience</td>
<td>User Experience (UX) Design</td>
<td>34</td>
<td>12%</td>
</tr>
<tr>
<td>Infrastructure &amp; Operations - Service Management</td>
<td>Incident Management</td>
<td>25</td>
<td>12%</td>
</tr>
<tr>
<td>Information Management - Doc &amp; Records</td>
<td>Data Privacy Compliance</td>
<td>32</td>
<td>13%</td>
</tr>
<tr>
<td>Applications Development - Languages/Frameworks</td>
<td>Quality</td>
<td>16</td>
<td>13%</td>
</tr>
<tr>
<td>Information Management - Database Management and Operations</td>
<td>Data Privacy</td>
<td>23</td>
<td>13%</td>
</tr>
<tr>
<td>Infrastructure &amp; Operations - Enterprise Networking</td>
<td>Network Diagnostics, Monitoring and Debugging</td>
<td>22</td>
<td>14%</td>
</tr>
<tr>
<td>IT Business Management - Policy</td>
<td>Policy Governance</td>
<td>22</td>
<td>14%</td>
</tr>
<tr>
<td>Information Management - Doc &amp; Records</td>
<td>Records Management and Retention</td>
<td>20</td>
<td>14%</td>
</tr>
<tr>
<td>Information Management - Database Management and Operations</td>
<td>Database Backup and Recovery</td>
<td>34</td>
<td>15%</td>
</tr>
<tr>
<td>Applications Development - Languages/Frameworks</td>
<td>PostgreSQL</td>
<td>20</td>
<td>15%</td>
</tr>
<tr>
<td>Applications Development - Languages/Frameworks</td>
<td>Python</td>
<td>20</td>
<td>15%</td>
</tr>
</tbody>
</table>

Note: Based on % of >=4 rating and % of selection > 25% of total participants.

Overall low cloud proficiency skillssets

Exhibit 6.2 – Top Training Requests from City Staff

Top Training Requests (N=150)

<table>
<thead>
<tr>
<th>Skill Category</th>
<th>Skill</th>
<th># with Training Request (%)</th>
<th># People Passed the Skill (%)</th>
<th>% of Training Request (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure &amp; Operations - Cloud Platforms</td>
<td>Google Cloud</td>
<td>32</td>
<td>19</td>
<td>14%</td>
</tr>
<tr>
<td>Applications Development - Digital</td>
<td>API and Services Platform Design</td>
<td>28</td>
<td>17</td>
<td>18%</td>
</tr>
<tr>
<td>Applications Development - Design</td>
<td>Mobile Design</td>
<td>36</td>
<td>22</td>
<td>18%</td>
</tr>
<tr>
<td>Architecture - Cloud Architecture</td>
<td>Cloud Security</td>
<td>24</td>
<td>18</td>
<td>12%</td>
</tr>
<tr>
<td>Applications Development - CRM</td>
<td>UX Personalization and Targeting</td>
<td>31</td>
<td>24</td>
<td>12%</td>
</tr>
<tr>
<td>Applications Development - CRM</td>
<td>Content Strategy</td>
<td>26</td>
<td>29</td>
<td>12%</td>
</tr>
<tr>
<td>Information Management - Strategy and Governance</td>
<td>Data Quality Management</td>
<td>21</td>
<td>17</td>
<td>13%</td>
</tr>
<tr>
<td>Applications Development - Development</td>
<td>Linux Shell Scripting</td>
<td>22</td>
<td>18</td>
<td>12%</td>
</tr>
<tr>
<td>Infrastructure &amp; Operations - Systems Administration</td>
<td>Database Backup and Recovery</td>
<td>23</td>
<td>19</td>
<td>12%</td>
</tr>
<tr>
<td>Applications Development - Design</td>
<td>Rapid Prototyping</td>
<td>24</td>
<td>20</td>
<td>12%</td>
</tr>
<tr>
<td>Delivery - Portfolio Management</td>
<td>Portfolio Planning</td>
<td>24</td>
<td>20</td>
<td>12%</td>
</tr>
<tr>
<td>Delivery - Portfolio Management</td>
<td>Tech Risk Governance</td>
<td>25</td>
<td>21</td>
<td>12%</td>
</tr>
<tr>
<td>Applications Development - Development</td>
<td>Linux Administration</td>
<td>19</td>
<td>16</td>
<td>12%</td>
</tr>
<tr>
<td>Information Security - Collect and Operate</td>
<td>Vulnerability Scanning, Tracking and Reporting</td>
<td>19</td>
<td>16</td>
<td>12%</td>
</tr>
<tr>
<td>Applications Development - Design</td>
<td>UX, Designing</td>
<td>20</td>
<td>17</td>
<td>12%</td>
</tr>
<tr>
<td>Applications Development - Languages/Frameworks</td>
<td>JSDV</td>
<td>20</td>
<td>17</td>
<td>12%</td>
</tr>
<tr>
<td>Information Management - Analytics</td>
<td>Segmentation/Runing</td>
<td>22</td>
<td>19</td>
<td>12%</td>
</tr>
<tr>
<td>Architecture - Cloud Architecture</td>
<td>Cloud Storage</td>
<td>24</td>
<td>21</td>
<td>12%</td>
</tr>
<tr>
<td>Applications Development - CRM</td>
<td>Campaign Programming and Execution</td>
<td>34</td>
<td>30</td>
<td>11%</td>
</tr>
<tr>
<td>Applications Development - User Experience</td>
<td>Persona Development</td>
<td>18</td>
<td>15</td>
<td>11%</td>
</tr>
</tbody>
</table>

Note: Based on % of >=4 rating and % of selection > 25% of total participants.

Overall low cloud proficiency skillssets

Capabilities to support emerging technologies and methods such as cloud and user centered design are lacking among City staff. This may impede future technology innovation and the ability to design new digital public services.

City staff understand the urgency for upskilling in newer technologies and methods. Most respondents identified needs for training in areas, such as cloud, UX, rapid prototyping, API design.
Goal 6: Empower & Inspire
Initiative: 6.1 - Refresh Position Titles to Support the City’s IT Modernization Initiatives

Overview

- The City’s position titles reflect IT roles that primarily support skills related to legacy systems development and maintenance.
- These position titles must be updated in order to obtain the talent needed to fill identified skill gaps and provide the necessary bandwidth to make the City’s IT modernization efforts successful (e.g., cloud architect, data scientist, etc.). Skills provided by outsourcing partners and firms providing consulting services on current / planned projects should be accommodated in the skills gap analysis in order to right-size the number of resources required in-house.
- Updated roles (along with commensurate pay) will help the City compete with other peer governments and the private sector for talent by attracting more candidates through online listings, job fairs, and other recruiting events. Refreshed roles will also further excite potential mentees as the City continues to leverage STEM as a pipeline for future technical talent.
- Career progression paths must also be developed for each new role in order to help the City retain its technical talent by providing more compelling and attractive career options.

Execution Guidance and Assumptions

- Roles should be assessed and refreshed regularly to be consistent with market trends
- Work with HR to refresh position titles, including job descriptions, grades, compensation and associated career paths
- The City should consider defining job families in order to standardize the qualifications and descriptions for related roles

Key Artifacts Delivered

- Updated Position Titles and related Career Progression (i.e., job families)

* Initiatives 6.1 and 6.2 should be completed in coordination with each other.
## Goal 6: Empower & Inspire

Initiative: 6.1 - Refresh Position Titles to Support the City’s IT Modernization Initiatives

### Example of a Job Family (as a tool for grouping / standardizing related position titles)

<table>
<thead>
<tr>
<th>Job Family</th>
<th>Technical Architecture</th>
<th>IT Strategy &amp; Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest grouping of related positions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Job Series | | |
| Career progression paths | | |

| Job Description | | |
| Specific roles (i.e., position titles) | | |

| Competencies | | |
| “Softer” skills, individual attributes / traits | | |

### Example of a Job Family

1. **Technical Architecture**
   - Domain Architecture
   - Information Architecture

2. **IT Strategy & Management**

3. **Business Analysis**
   - Business Relationship Manager
   - Business Analyst
   - Business Process Analyst

4. **Application Architect**
5. **Cloud Architect**
6. **Data Scientist**
7. **Data Analyst**

### Competencies

- **Analytical Thinking**
- **Design Thinking**
- **Adaptability**
- **Knowledge / Interest in Emerging Technology**

### Note

Continued heavy reliance on outsourcing partners and other service providers may require the City to focus more on Business Analysis roles vs. technical roles in order to minimize redundancies.
Experience-based career paths provide an expanded approach to career progression, promoting different experiences to gain new skills over exclusively developing deep expertise.

Map employee career progression based on **experiences** that build current and future capabilities.

Encourage direct reports at all levels to **move across team, functional and organisational boundaries**.

Increase career-development opportunities by **building employee knowledge, skills and abilities through experiences** that make them more valuable within the enterprise.
Goal 6: Empower & Inspire

Initiative: 6.1 - Refresh Position Titles to Support the City’s IT Modernization Initiatives

Example of Workforce Plan (as a tool for identifying roles and critical skills)

IT STRATEGIC WORKFORCE PLANNING PROCESS MAP

Strategic Workforce Plan Defined
A strategic workforce plan is a long-term blueprint to ensure workforce optimization—a holistic strategy encompassing recruiting, developing, managing, retaining, and redeploying talent to maximize the effectiveness of both the current and future workforce in light of strategic business priorities.

1. Understand Drivers
2. Change
3. Impact on IT Talent
4. Define Outsourcing Potential
5. Evaluate Your Current Team
6. Forecast Openings
7. Create an Attractive EVP

1. Identify IT Implications of Business Strategy
   Translate high-level corporate goals into IT objectives, and map current IT capabilities to these objectives.

2. Analyze External Trends
   Analyze external factors and macro-level workforce trends that may impact the business and IT talent pipeline.

3. Identify Competency and Skill Requirements
   Derive talent implications from the IT objectives to prepare for changes in the IT workforce plan.

4. Identify IT Role Shifts
   Highlight critical current and future skills and roles, and map the competencies that drive high performance to these roles.

5. Define Outsourcing Potential
   Define which skills and roles can be outsourced to calibrate the allocation of internal and external resources.

6. Assess Your Current Team
   Evaluate core competencies and strategy-critical skills to understand the strengths and weaknesses of the IT organization.

7. Forecast Openings
   Identify attrition risk and predict new openings to ensure the timely and effective development and acquisition of talent.

8. Create an Attractive EVP
   Explicitly communicate core drivers of the IT employment value proposition (EVP) to competitively hire and retain talent.

9. Proactively Source Candidates
   Evaluate diverse sourcing channels and design the steps IT will take to proactively generate qualified leads.

10. Identify HIPOs
    Identify and communicate high-potential employees to motivate and develop them for future leadership positions.

11. Design a Succession Strategy
    Identify talented leaders, and provide development experiences to help them take up future leadership positions.

12. Create Development and Training Plans
    Invest in strengthening the competencies and skills to build the next generation of world-class IT professionals.
Goal 6: Empower & Inspire
Initiative: 6.1 - Refresh Position Titles to Support the City’s IT Modernization Initiatives

Workforce Planning Case Study 1/2

- While strategic workforce planning has gradually become a common practice among Infrastructure & Operations (I&O) functions, the traditional workforce planning process does not focus on building critical emerging skills and competencies across the next two to five years.

- An I&O team looked to remediate this problem by creating a framework that enabled coordination with recruitment and finance functions. The I&O leadership team aimed to develop a workforce planning process that looked to the critical emerging skills and competencies needed for the function for the next two to five years.

- The team created a talent quadrant tool to prioritize skills and competencies that are critical for the future of I&O. The tool maps the needed I&O skills and competencies to the importance of IT’s strategic objectives/goals for the next two to five years. Using this tool, I&O leaders determined skills/competencies that could be built (developed internally), bought (hired externally) or borrowed (hiring temporary consultants and external talent). The talent quadrants for both skills and competencies enabled the organization to rapidly focus its talent priorities towards critical emerging needs.

- Through the talent quadrant, the I&O team was able to give both the recruitment and finance teams an understanding of I&O’s prioritized talent needs across the next two to five years. In turn, the recruitment team was able to develop a candidate pipeline for I&O’s future talent needs, while the finance was able to readjust a preapproved budget that prioritized sourcing talent with the critical emerging skills and competencies.
Goal 6: Empower & Inspire
Initiative: 6.1 - Refresh Position Titles to Support the City’s IT Modernization Initiatives

Workforce Planning Case Study 2/2

- The organization used the talent quadrant to implement a **forward fill strategy to swiftly recruit external talent**. I&O teams communicated with recruitment partners and finance in advance of staff members planning to leave their role. Based on agreement between the three functions, they set up a plan to **replace departing talent in low-priority areas with roles from the critical emerging needs quadrant of the talent quadrant and establish a recruitment pipeline** to hire critical emerging skills. Resources were reallocated to forward fill for key talent needs before departing staff leave.

- While the organization recruited external talent for emerging skills and competencies, it **also started a program to internally develop the skills of its staff**. IT teams were given extensive training opportunities to internally develop the critical emerging capabilities, as per the talent quadrant. Trainings targeted continuous learning and included educational podcasts, short videos, e-learning and targeted communications via various methods.

- IT reworked and **developed new high-impact job descriptions** to replace text-heavy (700+ words) descriptions, listing out a plethora of certifications with concise job descriptions (300+ words) that highlighted the organization’s mission to attract the most qualified applicants, regardless of their educational qualifications.

- The organization’s **time to fill for finding new contractors declined by 37%** after the adoption of the new workforce planning initiative. Additionally, **days to hire went down from 48 days before the initiative to 29 days after it**, representing a 40% improvement on time to fill. The workforce transformation also enabled an increase in the proficiency of skills. The number of staff with cloud and automation skills nearly doubled from 2018 to 2019, while those with project/program management, and technical product management skills significantly increased.
Goal 6: Empower & Inspire a capable and engaged IT workforce

- 6.1 – Refresh Position Titles to Support the City’s IT Modernization Initiatives
- 6.2 – Recruit High Priority IT Lead / Staff Positions
- 6.3 – Update IT Training Program to Address Skills Gaps
- 6.4 – Establish Succession Plan to Mitigate Retirement Risks
## Goal 6: Empower & Inspire
### Initiative: 6.2 - Recruit High Priority IT Lead / Staff Positions

### Overview
- The city has several unfilled IT positions and new ones have been identified and will be further defined.
- Recruiting for these positions is essential to achieve the strategic objectives of the city and for modernization of IT at the city.
- The opportunity to work for the city of Chicago is a strong incentive for talented IT workforce in the city; attracting them by creating an environment which enables them in exercising their skills will provide the additional incentive needed to hire top talent and fulfill the high priority IT lead and staff positions.

### Execution Guidance and Assumptions
- Align training program planning with concurrent modernization efforts supporting other 2021 – 2024 IT Strategic Plan goals.
- For example, if the City opts to accelerate efforts for Goal 2: Leverage Data to Spur Innovation, increased training in data analysis and data science may be warranted.
- Enhancements to training offerings should be made on an ongoing basis by taking advantage of employee feedback and requests.

### Key Activities
| Identify open positions and create job descriptions | The rationalization of position titles will reflect the responsibilities expected of a position which must be written in a compelling job description that highlights the opportunity to make a difference and the support available to achieve success |
| Advertise job postings through appropriate channels | It is important to use the available channels to advertise the job openings at the city to increase visibility. IT talent is in general in high demand, and it is incumbent upon the city to cast a wide net to ensure that able and interested candidates are made aware of the opportunity. Relevant Social Media and other targeted channels must be used to reach the right audience. |
| Thoroughly but swiftly evaluate candidates for suitable hires | Interviews and other means must be used to quickly assess the candidates for suitability to the role and once identified job offers must be so that the right talent can be recruited to become a productive member of the city IT team |

### Key Artifacts Delivered
- Job Descriptions
- Recruitment program

* Initiatives 6.1 and 6.2 should be completed in coordination with each other.
Goal 6: Empower & Inspire a capable and engaged IT workforce

- 6.1 – Refresh Position Titles to Support the City’s IT Modernization Initiatives
- 6.2 – Recruit High Priority IT Lead / Staff Positions
- 6.3 – Update IT Training Program to Address Skills Gaps
- 6.4 – Establish Succession Plan to Mitigate Retirement Risks
### Overview
- The City has established a collaborative approach to training. For example, the City has leveraged cross-team, staff-led working groups to discuss and share information on IT topics relevant to all teams.
- In 2020, the City focused its efforts on its Training HIVE and provided 17 different training options and trained 3,954 staff within AIS BOIT, as well as across the City.
- Initiative 6.1 (Update IT Training Program to Address Priority Skills Gaps) will build upon the City’s collaborative approach by sharing the results from the Current State Assessment findings with both employees and key City partners, such as HR.
- Based on these joint discussions, the City can work with HR to enhance current training programs while leveraging existing suppliers / software solutions, as needed.

### Key Activities

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Confirm Prioritized Skills and Gaps</td>
<td>Share Current State Assessment findings with the City’s IT workforce and AIS managers / project managers in order to confirm or adjust list of skills and gaps. Establish prioritized list for training based on current / future IT projects and skills required to support other IT Strategic Plan Goals while incorporating the skill sets provided by partners.</td>
</tr>
<tr>
<td>2. Adjust Current Learning &amp; Development Portfolio</td>
<td>Work with HR to identify the existing learning and training opportunities that are available. Determine which learning and training needs will be handled by HR vs AIS. Identify suppliers/vendors that can be utilized for the portfolio (e.g., Learning Management System, LinkedIn learning, internal learning academy, etc.)</td>
</tr>
<tr>
<td>3. Modify and Implement IT Training Programs</td>
<td>Collaborate with HR to enhance or develop training programs and design upskilling roadmaps. Reinforce and build upon training programs by sharing materials informally through collaboratives, such as the Training HIVE and promoting development across various skills through on-the-job exposure / multiple experiences. Complement the training on “hard” IT skills (e.g., cloud, enterprise architecture, etc.) with the “soft” skills training necessary to support the agility and creativity needed for designing digital public services (e.g., building empathy through human-centered design).</td>
</tr>
</tbody>
</table>

### Execution Guidance and Assumptions
- Align training program planning with concurrent modernization efforts supporting other 2021 – 2024 IT Strategic Plan goals.
- For example, if the City opts to accelerate efforts for Goal 2: Leverage Data to Spur Innovation, increased training in data analysis and data science may be warranted.
- Enhancements to training offerings should be made on an ongoing basis by taking advantage of employee feedback and requests.

### Key Artifacts Delivered
- Updated IT Training Program

### Owner
- AIS Executive

### Core Duration
- 4 Months

### Execution Team
- HR / Labor Relations
- AIS Managers

### Key Dependencies
- Goal 1: Reimagine Workforce & Processes
- Goal 2: Leverage Data to Spur Innovation
- Goal 3: Transform City Infrastructure

### Timeframe
- 0 – 6 months

### Complexity
- Medium

### Onetime Cost
- NA

### Ongoing Cost
- NA
Goal 6: Empower & Inspire a capable and engaged IT workforce

- 6.1 – Refresh Position Titles to Support the City’s IT Modernization Initiatives
- 6.2 – Recruit High Priority IT Lead / Staff Positions
- 6.3 – Update IT Training Program to Address Skills Gaps
- 6.4 – Establish Succession Plan to Mitigate Retirement Risks
### Goal 6: Empower & Inspire

**Initiative: 6.4 - Establish Succession Plan to Mitigate Retirement Risks**

**Overview**
- The City has a highly committed and tenured IT workforce (32% of staff have a 20+ year tenure).
- It is important to address the retirement risks to prevent operational issues caused by the loss of institutional knowledge of the City’s mission-critical systems.
- Succession needs must be identified, individuals assessed for high potential to fill roles vacated due to attrition, and specific development / knowledge transfer plans created to clearly communicate the gaps that individuals must address and in what time frame.

**Execution Guidance and Assumptions**
- Succession planning process must be aligned with and accommodate labor bargaining units’ rules (e.g., processes that mandate offering of jobs based on seniority or other factors)
- Maintain an open line of communication with potential successors - when they lack clarity about the succession process or their value to the organization, the highest-potential internal talent may start exploring options outside the organization

**Key Artifacts Delivered**
- Succession Plan

---

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Define Succession Needs</td>
<td>Create an inventory of roles that support the City’s mission critical systems / initiatives</td>
</tr>
<tr>
<td></td>
<td>Identify the personnel that are currently in those roles</td>
</tr>
<tr>
<td></td>
<td>Determine priority for succession management based on each role’s criticality for preventing operational failures and supporting modernization efforts and the probability of attrition (e.g., retirement vulnerable, flight risk)</td>
</tr>
<tr>
<td>2. Identify Potential Candidates</td>
<td>Leverage skills assessment data from the Current State Assessment to help identify potential candidates for filling prioritized roles</td>
</tr>
<tr>
<td></td>
<td>Document the pipeline of talent in a succession planning document</td>
</tr>
<tr>
<td>3. Develop Plans for Individual Readiness</td>
<td>Create an employee development / knowledge transfer plan to prepare individuals for succession into the target roles</td>
</tr>
<tr>
<td></td>
<td>Conduct frequent reviews to assess the progress and readiness of individuals and refine and adjust succession plans / approaches to align with changing business needs</td>
</tr>
</tbody>
</table>

**Timeframe**: 0 – 6 months

**Complexity**: Medium

**Onetime Cost**: $100 k – $200 k

**Ongoing Cost**: NA

**Owner**: AIS Executive

**Core Duration**: 4 Months

**Execution Team**
- HR / Labor Relations
- AIS BoIT Managers

**Key Dependencies**
- Goal 1: Reimagine Workforce & Processes
Goal 7: Ensure Equity & Accessibility

- 7.1 – Extend Accessibility Standards and Multi-Lingual Capabilities
- 7.2 – Define Digital Equity Targets & Metrics
- 7.3 – Apply Digital Equity Metrics to Modernization Initiatives
Goal 7: Ensure Equity & Accessibility

Strategic Planning Context

Equity can be accelerated when the benefits from technology are realized for all Chicagoans. To this end, the City is participating in the National Telecommunications and Information Administration’s Broadband USA to increase broadband internet access across underserved neighborhoods. It also adheres to Web Content Accessibility Guidelines (WCAG) 2.0 and offers real-time translation services to make the City’s website and other sites more accessible to a wider range of people.

The City has put into place programs that foster the building of technology skills and/or enable increased access to technology. For example, Chicago public libraries offer a variety of computer and technology programming. The My CHI My Future initiative provides opportunities to participate in Chicago’s diverse, out-of-school ecosystem across race, gender identities, age, disability, immigration status, income, neighborhood, and other identities, by leveraging community assets and the city’s resources to build positive futures for Chicagoans.

Chicago Public Libraries Technology Programming

MyCHI My Future Technology Learning Opportunities
Goal 7: Ensure Equity & Accessibility

Strategic Planning Context (continued)

In order to augment the comprehensive IT assessment and IT strategic plan with a resident viewpoint of technology usage and priorities, the project team has initiated a separate engagement to conduct a resident IT engagement survey to assess technology usage across socio-economic factors.

The Resident Technology Engagement Assessment is intended to capture residents’ perceptions, needs, and use of technology across ethnic and socioeconomic attributes. These insights can serve as the first step and foundation for building the City’s competencies to engage and co-design solutions with residents. This will ultimately accelerate inclusive growth through a digital transformation of public services.

Preliminary Findings

At the time this IT Strategic Plan has been drafted, the project team has received 2,500+ survey responses from Chicagoans. Based on the preliminary findings, there is minimum variance in the access of City services through digital channels across Chicago’s neighborhoods. The team is discovering that residents from under invested neighborhoods, such as Austin, Brighton Park, Chatham, Lower West Side, and Oakwood, have a higher usage of City services by using a mobile device to access the City’s website and slightly higher usage of technology in a public location (e.g., library, alderman’s office).

In other words, residents from under invested neighborhoods access City services through computers or smart phones at the same rate as other neighborhoods. Additionally, Chicagoans consistently across the neighborhoods desire a seamless digital experience. 46% of the residents from the under invested neighborhoods completely agree with the statement: “I expect City services to be as easy to use as online shopping”.

32% of these residents indicate that the highest barrier to increasing the use of City services through digital channels is insufficient information and that the information provided by the City is too complex. It also appears that with improved awareness and easier to understand information available, digital is a strong means for the City to deliver public services and have those services equitably accessed and used across all neighborhoods.

A full set of analyses and recommendations are being drafted and will be provided as a separate report.
Goal 7: Ensure Equity & Accessibility

Initiative: 7.1 – Extend Accessibility Standards and Multi-Lingual Capabilities

Overview

The City of Chicago Design System includes a comprehensive set of standards and best practices for assuring that the City’s solutions promote accessibility for all Chicagoans. It also adheres to Web Content Accessibility Guidelines (WCAG) 2.0 and offers practical tips and instructions, such as a checklist that helps developers identify potential accessibility issues affecting their websites or applications.

Key Activities

1. Complete and Continuously Improve the City of Chicago Design System Accessibility Site

   - The City’s accessibility site within the Chicago Design System is comprehensive, but it is still in a draft status with notations displayed on the site itself that it is still being built. Additionally, the WCAG standards are not yet consistently applied per interviews with the CTO team and the Mayor’s Office for People with Disabilities.
   - Given the City’s high priority on accessibility, the City should assign a member of the proposed Digital Services Team to maintain the site and provide continuous education to the developers supporting the City (both in-house and from external vendors).

2. Extend Website Translation Capabilities

   - The City noted in the 2020 year-end report of its plans to extend its translation software to provide more automated testing and translation of program information on the chicago.gov website and to incorporate this functionality to CHI 311 as a stretch goal.
   - Given the City’s high priority on building inclusive services, the City should assign a member of the proposed Digital Services Team to implement the needed software capabilities and provide continuous education to the developers supporting the City (both in-house and from external vendors).

Key Artifacts Delivered

- Updated and Maintained Accessibility Site within Chicago Design System

Complexity | Medium
Owner | AIS
Cost | N/A
Core Duration | Ongoing
Execution Team
- AIS
Execution Guidance and Assumptions
- Reference the Accessibility Site as part of the Digital Services Playbook being developed as part of Goal 4
Key Dependencies
- Goal 4: Put People at the Center

N/A
Goal 7: Ensure Equity & Accessibility

- 7.1 – Extend Accessibility Standards and Multi-Lingual Capabilities
- 7.2 – Define Digital Equity Targets & Metrics
- 7.3 – Apply Digital Equity Metrics to Modernization Initiatives
Goal 7: Ensure Equity & Accessibility
Initiative: 7.2 – Define Digital Equity Targets & Metrics

Overview
The City has created an Office of Equity and Racial Justice to oversee the development and coordination of policies and practices to advance racial and social equity throughout Chicago. As this office seeks to “promote equity in the city’s service delivery, decision-making, and resource distribution”, the City can leverage the outcomes from the resident IT engagement to define metrics and guidelines for using technology to promote the City’s equity goals.

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analyze Resident Engagement Survey Outcomes</td>
<td>▪ Complete the data analysis and tabulate the outcomes from the resident IT engagement.</td>
</tr>
<tr>
<td></td>
<td>▪ Share the outcomes with the appropriate City stakeholders.</td>
</tr>
<tr>
<td>2. Work with Chief Equity Officer to Define Digital Equity Metrics</td>
<td>▪ A fundamental prerequisite to this activity is to define / clarify the City’s goals for digital equity in general (i.e., does the City desire to assure access / connectivity, availability of digital devices, and/or active engagement through digital channels?) Examples of indices that can be used to build KPIs are provided on the next page.</td>
</tr>
<tr>
<td></td>
<td>▪ This clarity will better enable the City to use the insights from the resident IT engagement to define more specific metrics that can be used to measure equitable access to, and usage of City services delivered through digital channels.</td>
</tr>
</tbody>
</table>

Complexity: Medium  
Cost: N/A

<table>
<thead>
<tr>
<th>Owner</th>
<th>AIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Duration</td>
<td>3 months</td>
</tr>
</tbody>
</table>

| Execution Team | AIS  
|                | Office of Equity and Racial Justice |

| Key Dependencies | Goal 4: Put People at the Center |

Execution Guidance and Assumptions
▪ Incorporate guidelines into key documents and processes, such as the Digital Services Playbook that is a planned initiative as part of Goal 4

Key Artifacts Delivered
▪ Equity Metrics for Digital Services engagements
Based on Gartner Research findings, Digital Citizen Equity measures “how people navigate the digital society in comfort and within their own skills across everything digital”.

To assist clients in defining the right set of Key Performance Indicators (KPIs) for defining and measuring the progress of their equity and inclusion programs, Gartner has defined a Digital Citizen Equity Index. The higher the value, the higher the comfort level and the constituent’s perception of empowerment through digital technologies, policies and economy.

This index offers KPIs within three segments that Chicago can use for defining digital equity metrics for its residents and businesses and comparing its progress against other regions:

- **Present**: Residents generally partake in society and are digitally engaged in basic ways.
- **Active**: Residents demonstrate good participation in digital society, consuming a wide range of available services and technologies.
- **Contributing**: Residents are actively contributing to the digital economy. They see technology as a transformative way to impact life and work, which will change how society is operating.

Examples of Digital Equity Key Performance Indicators (KPIs)
Goal 7: Ensure Equity & Accessibility

- 7.1 – Extend Accessibility Standards and Multi-Lingual Capabilities
- 7.2 – Define Digital Equity Targets & Metrics
- 7.3 – Apply Digital Equity Metrics to Modernization Initiatives
# 2021 IT Strategic Plan

## Goal 7: Ensure Equity & Accessibility

### Initiative: 7.3 – Apply Digital Equity Metrics to Modernization Initiatives

### Overview

The purpose of this initiative is to define and implement an action plan to apply digital equity metrics for measuring the success of digital initiatives. This action plan can include activities for including residents from underserved communities to co-design digital public services.

### Key Activities and Description

<table>
<thead>
<tr>
<th>Key Activities</th>
<th>Description</th>
</tr>
</thead>
</table>
  ▪ Incorporate this action plan into the appropriate City policies and processes, including the Digital Services Playbook. |
| 2. Apply Digital Equity Metrics to Modernization Efforts | ▪ The implementation of this action plan includes defining KPIs to be achieved through the implementation of City systems and having responsible project managers measure achievement of those metrics.  
  ▪ This initiative can also include the planning / implementation of resident-facing outreach and workshops to co-design City services that incorporate digital technologies (e.g., use of multi-lingual chatbots for answering questions, facial authentication to make applications easier to submit over a mobile phone, etc.). These activities can be facilitated by the proposed Digital Services Team.  
  ▪ This initiative offers residents in underserved communities a direct voice in the design of the functionality of digital public services. |

### Complexity | Medium  | Cost | N/A  
--- | --- | --- | ---
Owner | AIS | Core Duration | Ongoing

### Execution Team

- AIS
- Office of Equity and Racial Justice
- Technology Strategy Group
- Chief Data Officer

### Key Dependencies

- Goal 4: Put People at the Center

### Execution Guidance and Assumptions

- Incorporate guidelines into key documents and processes, such as the Digital Services Playbook that is a planned initiative as part of Goal 4.

### Key Artifacts Delivered

- Updated Digital Services Playbook