

 **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.

Vision

Executive Summary

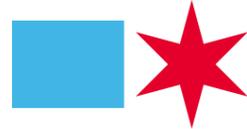
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*About the IT Strategic Plan**Implementation Roadmaps**Initiative Details*

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:

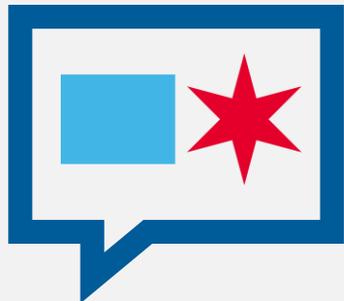
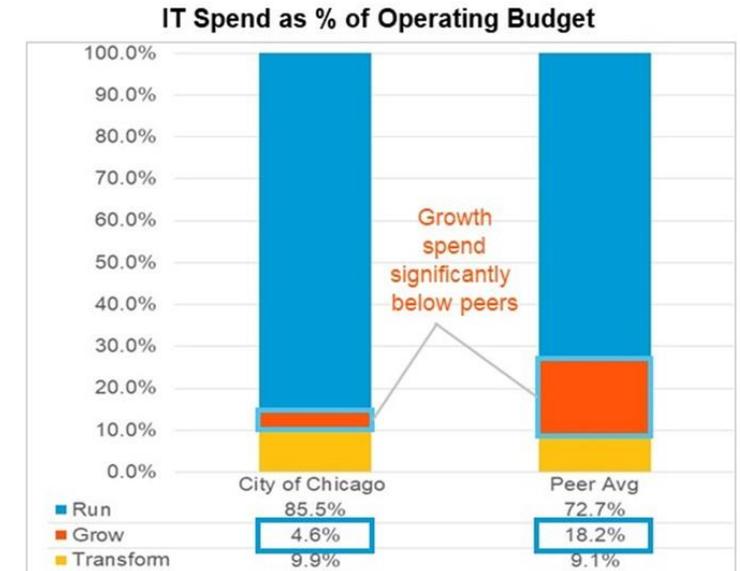
- Publishing **742 datasets on the open data portal** comprising business licenses, crime, food inspections, environmental data, etc.
- Migrating enterprise systems and infrastructure such as the City’s call center and mobile device management **from legacy, on-premise systems to cloud-based platforms**.

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:

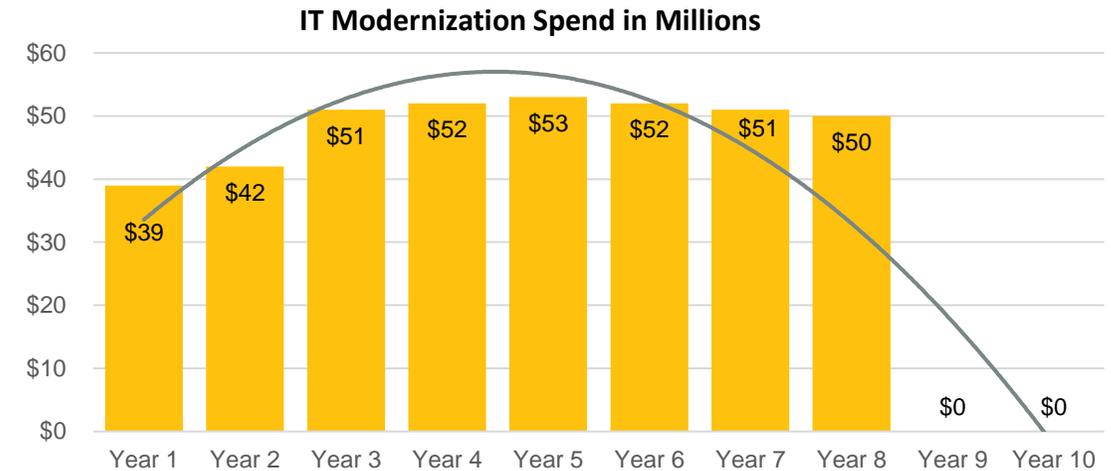
- **Goal 1: Reimagine Workforce and Processes** - Improve the City's IT management, oversight and Central IT and departmental collaboration
 - **Goal 2: Leverage Data to Spur Innovation** - Expand data-sharing and analytics capabilities
 - **Goal 3: Transform City Infrastructure** - Modernize applications 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.

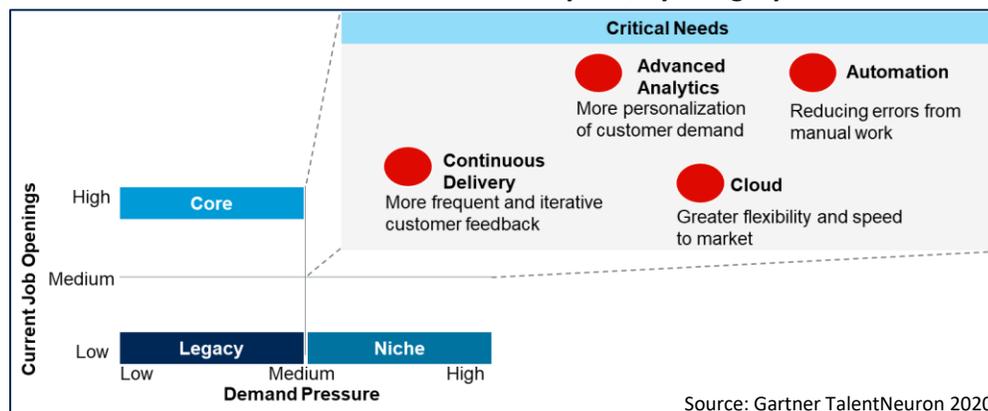
Invest in building the capacity and capability of the IT workforce

- 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)



Gartner IT Skills Quadrant showing the skills in demand over the next two to five years, by category



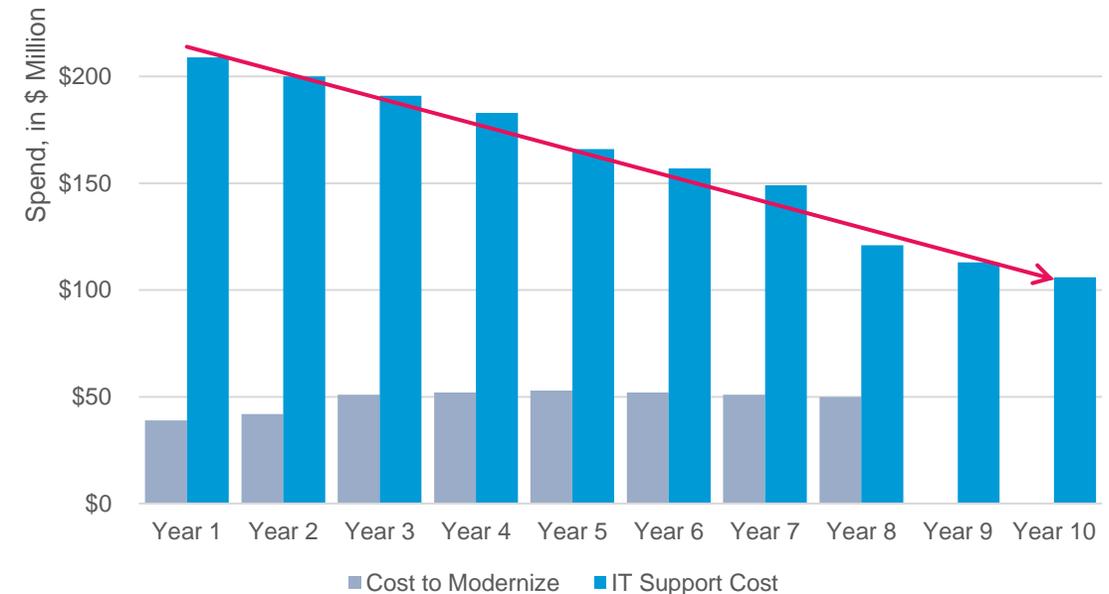
- The application portfolio is comprised of **aging technology**, which not only requires specialized skills to maintain, but also **increases both risk and cost**.
- Several of the apps **do not adequately achieve their business objectives**, resulting in workarounds that create additional drag on resources.
- 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.*

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*About the IT Strategic Plan**Implementation Roadmaps**Initiative Details***Goal 1:** Reimagine Workforce & Processes**Goal 2:** Leverage Data to Spur Innovation**Goal 3:** Transform City Infrastructure**Goal 4:** Put People at the Center**Goal 5:** Collaborate to Innovate**Goal 6:** Empower & Inspire**Goal 7:** Ensure Equity & Accessibility **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

Goal 2: Leverage Data to Spur Innovation

Goal 3: Transform City Infrastructure

Goal 4: Put People at the Center

Goal 5: Collaborate to Innovate

Goal 6: Empower & Inspire

Goal 7: Ensure Equity & Accessibility



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.

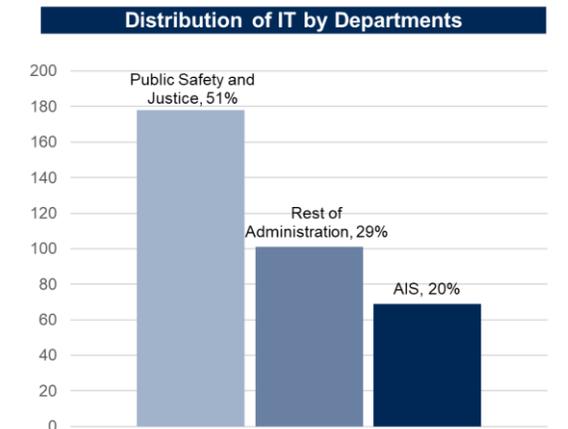
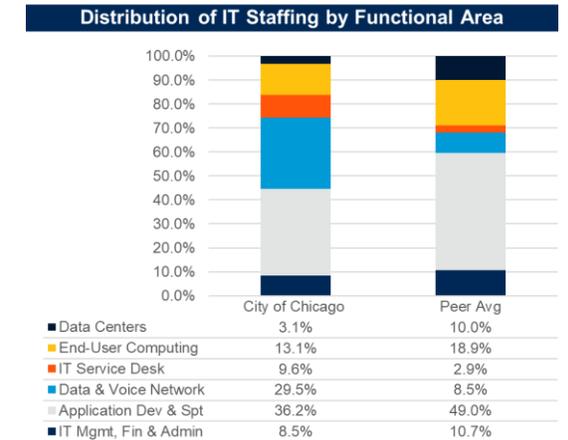
The City should assess the current distribution of workload within IT and determine the optimal mix of in-house and outsourcing. The role of central IT in relation to the IT capabilities in other departments will need to be assessed and formalized so that the lines of responsibility are clear and redundant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

Distribution of IT workforce at Chicago against benchmark of comparable Cities in North America



Goal 1: Reimagine Workforce & Processes

Summary Action Plan

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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
1.1	Relaunch Technology Strategy Group (TSG)	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS Comm. (Chair) ▪ CTO ▪ Departments ▪ PMO 	Immediate	Low	Ongoing effort	One time: NA
							Ongoing: NA
1.2	Improve & Deploy Citywide IT Operating Model	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ HR ▪ CTO ▪ AIS Deputy Comm. (s) ▪ Department IT Leads (where applicable) 	Immediate	High	<960 hours	One time: \$250k - \$500k
							Ongoing: TBD after development of the model

Goal 1: Reimagine Workforce & Processes

Summary Action Plan

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Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
1.3	Hire Business Relationship Managers (BRM) to Improve Central-IT and Department Collaboration	<ul style="list-style-type: none"> ▪ 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 <i>1.2 IT Operating Model</i>. ▪ 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. 	<ul style="list-style-type: none"> ▪ Department heads ▪ CTO ▪ HR 	Short-Term	Medium	<960 hours + ongoing effort 12 FTEs (<i>with some dedicated to a cluster of small departments, other focused on large ones</i>)	<i>One time:</i> 0 - \$250k (0 if included with 1.2) <i>Ongoing:</i> annual \$1M – \$2M
1.4	Mature City's Change Management and Business Process Improvement Capabilities	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS ▪ Departments ▪ Change Management Specialist ▪ Business Process Engineers 	<ul style="list-style-type: none"> ▪ <i>Short Term for Change Mgmt.</i> ▪ <i>Medium Term for Business Process reengineering</i> 	High	640 hours + Ongoing 2-4 FTEs (<i>for Change and Business Process to serve as coaches to other departments</i>)	<i>One time:</i> \$1M+ <i>Ongoing:</i> \$500k – \$1M

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Goal 2: Leverage Data to Spur Innovation

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Goal 4: Put People at the Center

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Goal 6: Empower & Inspire

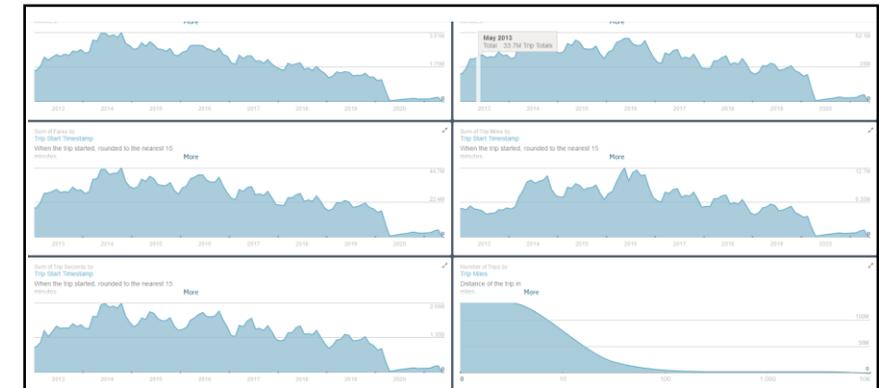
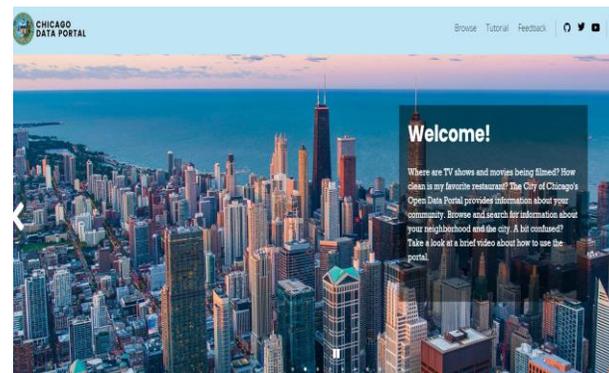
Goal 7: Ensure Equity & Accessibility

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



Taxi Dashboard

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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Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
2.1	Design and Implement Data & Analytics Strategy	<ul style="list-style-type: none"> ▪ 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.). 	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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.). 	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Establish the enterprise Data & Analytics infrastructure to enable fit-for-purpose intake, storage, process, and access to City data. 	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Develop department and technology master data requirements and manage master data assets across the end-to-end data lifecycle. 	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Identify and understand cross-departmental use cases to drive value from data. ▪ Incrementally execute and deploy predictive and prescriptive analytics Minimum Viable Products. 	<ul style="list-style-type: none"> ▪ Chief Data Officer ▪ Departments 	Mid-Term	Low	Ongoing effort	One time: < \$250k
							Ongoing: NA
2.6	Establish City-Wide Data Literacy Program	<ul style="list-style-type: none"> ▪ Develop a data literacy strategy to mature data understanding and usage across departments. ▪ Continuously baseline and benchmark data literacy for continuous improvement. 	<ul style="list-style-type: none"> ▪ Chief Data Officer ▪ Departments 	Immediate	Low	< 6570 hours	One time: < \$250k
							Ongoing: < \$250k annually

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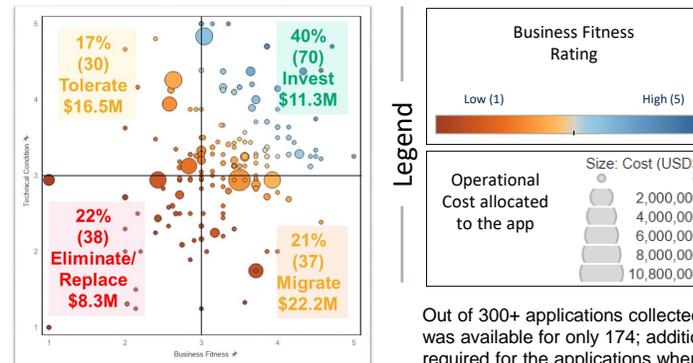
Goal 3: Transform City Infrastructure

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.

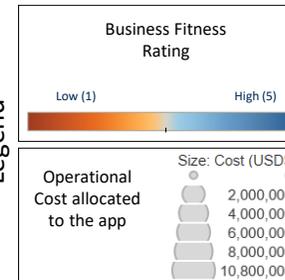
Gartner’s Application Portfolio Assessment Findings



Gartner TIME Methodology:

- **Tolerate** — Lower Business Fit, Good Technical Condition
- **Invest** — Higher Business Fit Technical Condition
- **Migrate** — Higher Business Fit, Poor Technical Condition
- **Eliminate** — Poor Business Fit Technical Condition

Legend

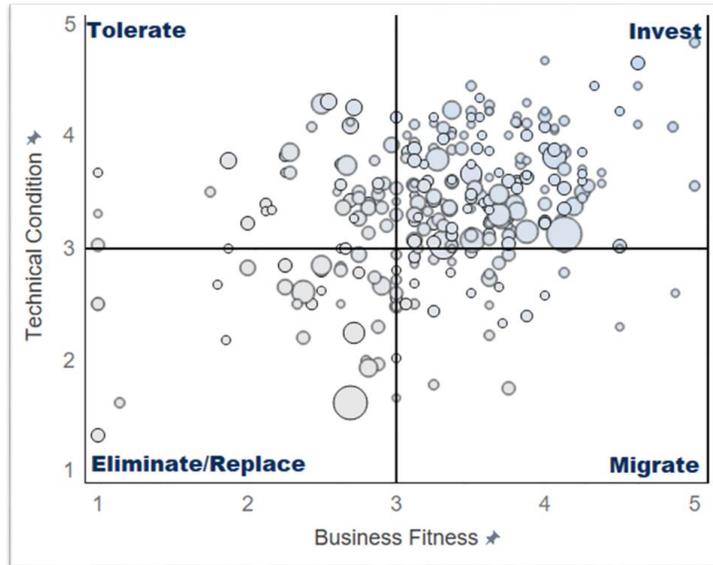


Out of 300+ applications collected complete data was available for only 174; additional analysis is required for the applications where sufficient data was not available

Key Initiatives:

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

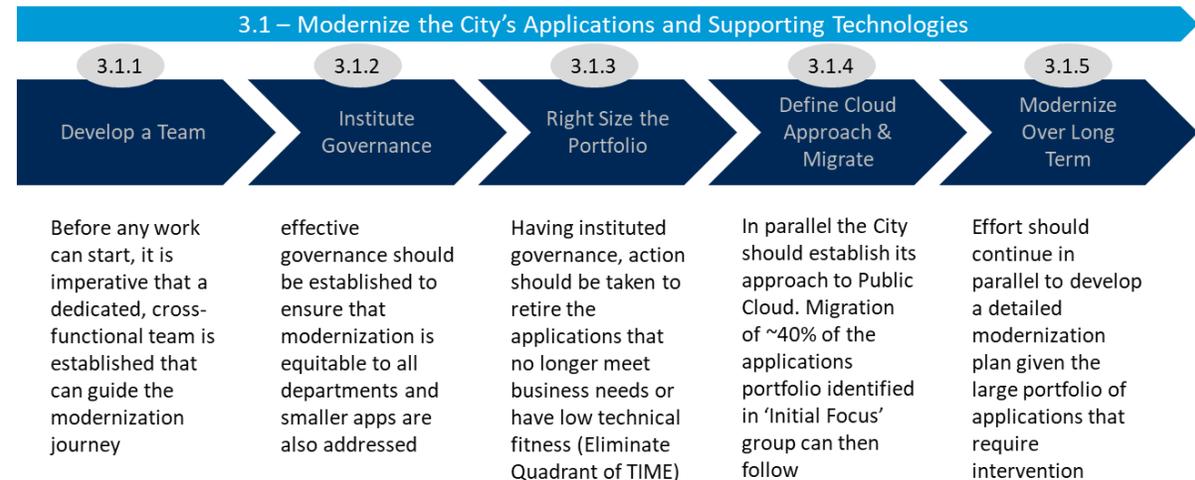
Goal 3: Transform City Infrastructure



- 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 TIME methodology is an industry standard application assessment framework developed by Gartner Research.

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



3.2 – Strengthen Technology Infrastructure, Integration & Security

Goal 3: Transform City Infrastructure

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Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
3.1	Modernize the City's Applications and Supporting Technologies						
3.1.1	Build a Dedicated Application Modernization Project Team	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS ▪ Technology Strategy Group 	Immediate	High	672 hours + Ongoing 2 – 4 FTEs	<i>One time:</i> NA <i>Ongoing:</i> NA
3.1.2	Improve Application Portfolio Governance	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS 	Immediate	Medium	Ongoing	<i>One time:</i> NA <i>Ongoing:</i> NA
3.1.3	Right Size Application Portfolio	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS ▪ Technology Strategy Group 	Immediate	High	672 hours + Ongoing 2 – 4 FTEs	<i>One time:</i> \$500k- \$1M <i>Ongoing:</i> NA

Contd. ...

Goal 3: Transform City Infrastructure

Summary Action Plan

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- **Immediate:** Initiate action within 0 to 6 months
- **Short-Term:** Initiate action within 6 to 12 months
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- **Long-Term:** Initiate action after 18 months

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
3.1	Modernize the City's Applications and Supporting Technologies						
3.1.4	Define Cloud Migration Approach & Procure Vendor Support	<ul style="list-style-type: none"> ▪ 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). 	<ul style="list-style-type: none"> ▪ AIS ▪ Procurement Services 	Short-Term	High	672 hours 2 – 4 FTEs	<i>One time:</i> TBD <i>Ongoing:</i> NA
3.1.5	Create Detailed Plan for Modernization Efforts & Streamline Application Portfolio Over the Long Term	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS ▪ Departments 	Mid-Term	Medium	Approx. 700 hours per application	<i>One time:</i> \$750k-\$2M <i>(Cloud Migration Support)</i> <i>Ongoing:</i> 15-20% of Implementation Cost

Goal 3: Transform City Infrastructure

Summary Action Plan

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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
3.2	Strengthen Technology Infrastructure, Integration & Security						
3.2.1	Develop a detailed Hybrid Multi-Cloud Infrastructure Implementation Approach	<ul style="list-style-type: none"> ▪ Develop a detailed approach for implementing a Hybrid Multi-Cloud model that encompasses the City's on-premises data centers and public cloud environment. ▪ This approach should be based on: IT strategic alignment, risk mitigation, operational excellence, and financials/cost considerations. 	<ul style="list-style-type: none"> ▪ AIS 	Mid-Term	Medium	480 hours 2 – 4 FTEs	<i>One time:</i> \$250k-\$500k <i>Ongoing:</i> NA

Goal 1: Reimagine Workforce & Processes

Goal 2: Leverage Data to Spur Innovation

Goal 3: Transform City Infrastructure

Goal 4: Put People at the Center

Goal 5: Collaborate to Innovate

Goal 6: Empower & Inspire

Goal 7: Ensure Equity & Accessibility

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
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



Summary of Community Engagement Methods for CHI 311

Community Engagement Matrix											
Types of Engagement	Online Communities	Stand Up Banner with Display Table	Printed Materials	Blog	User Testing	Presentation	CAG	Community mapping	Post Cards from the Future	Easel Responses	Promotional Items
Awareness	★	★	★	★	★			★			★
Resident Engagement	★	★	★	★		★	★		★	★	★
Community Meeting	★	★	★	★		★				★	★

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)

Goal 4: Put People at the Center

Summary Action Plan

- 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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
4.1	Build a Digital Services Team	<ul style="list-style-type: none"> ▪ 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). 	<ul style="list-style-type: none"> ▪ AIS ▪ HR 	Immediate (for team lead)	Medium	960 hours (to build up an entire team over time)	One time: NA
							Ongoing: NA
4.2	Develop a Playbook for Delivery	<ul style="list-style-type: none"> ▪ 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.) 	<ul style="list-style-type: none"> ▪ AIS ▪ Technology Strategy Group 	Mid-Term	Medium	320 hours (initial draft)	One time: No Cost - \$150k (could use non-profit support)
							Ongoing: NA

Contd. ...

* These FTEs will be members of the Digital Services Team to be built as part of Initiative 4.1.

Goal 4: Put People at the Center

Summary Action Plan

- 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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
4.3	Use Resident Feedback to Prioritize Digital Services	<ul style="list-style-type: none"> ▪ Leverage communication tools, surveys, and town halls to identify priorities for digital services from the residents' perspective. ▪ 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.) 	<ul style="list-style-type: none"> ▪ AIS 	Short-Term (initial outreach)	Medium	Ongoing 1 - 2 FTEs* Annually	One time: \$150k - \$200k (initial start up assistance, such as market research)
							Ongoing: Varies
4.4	Incrementally Deliver Public Services (Platform Approach)	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS ▪ Departments 	Long-Term	High	Ongoing 10 - 15 FTEs* Annually	One time: Varies based on prioritized digital services
							Ongoing: annually \$5M – \$10M

* These FTEs will be members of the Digital Services Team to be built as part of Initiative 4.1.

Goal 1: Reimagine Workforce & Processes

Goal 2: Leverage Data to Spur Innovation

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Goal 4: Put People at the Center

Goal 5: Collaborate to Innovate

Goal 6: Empower & Inspire

Goal 7: Ensure Equity & Accessibility

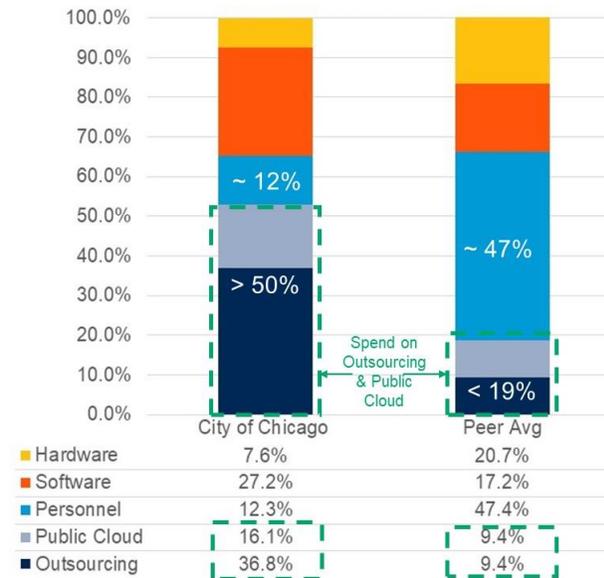


Goal 5: Collaborate to Innovate with External Partners

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

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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
5.1	Identify Vendor Services Needed to Support Modernization	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS ▪ Technology Strategy Group 	Short-Term	Medium	320 hours	One time: NA
							Ongoing: NA
5.2	Prioritize and Define Scope for Vendor Services	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS ▪ Technology Strategy Group ▪ Departments 	Short-Term	Medium	320 hours	One time: NA
							Ongoing: NA
5.3	Procure Necessary Services	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.					
		<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ Procurement Services 	Short-Term	Low	80 hours (per event)	One time: NA
		<ul style="list-style-type: none"> ▪ 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). 	<ul style="list-style-type: none"> ▪ AIS ▪ Technology Strategy Group ▪ Procurement Services 	Mid-Term	Medium	160 hours (per Task Order)	One time: NA
							Ongoing: NA

Goal 5: Collaborate to Innovate with External Partners

Summary Action Plan

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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
5.3	Procure Necessary Services (continued)	<ul style="list-style-type: none"> ▪ 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). 	<ul style="list-style-type: none"> ▪ AIS ▪ Technology Strategy Group ▪ Procurement Services ▪ Department of Law ▪ Office of Budget Management ▪ Departments 	Mid-Term	Medium	480 hours (per solicitation)	<i>One time: \$150k - \$250k (depending upon scope of solicitation)</i>
		<ul style="list-style-type: none"> ▪ 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. 		Long-Term	High To Very High (e.g., Outsourcing Re-Bid RFP)	640 hours to 1600 hours (per solicitation)	<i>One time: \$300k - \$800k (depending upon scope of solicitation)</i> <i>Ongoing: NA</i>

Goal 1: Reimagine Workforce & Processes

Goal 2: Leverage Data to Spur Innovation

Goal 3: Transform City Infrastructure

Goal 4: Put People at the Center

Goal 5: Collaborate to Innovate

Goal 6: Empower & Inspire

Goal 7: Ensure Equity & Accessibility

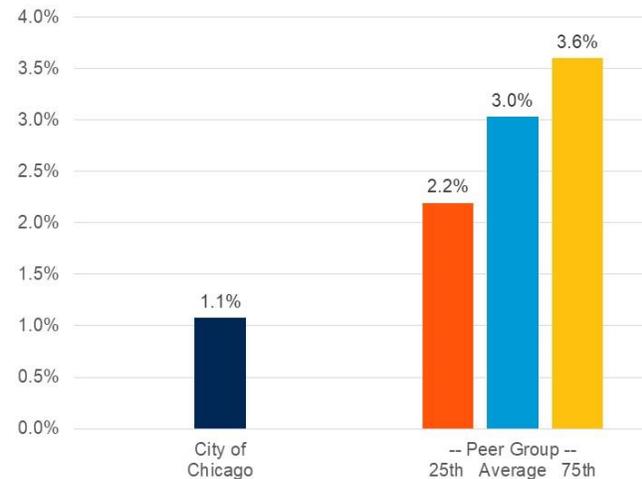


Goal 6: Empower & Inspire a Capable and Engaged IT Workforce

Overview

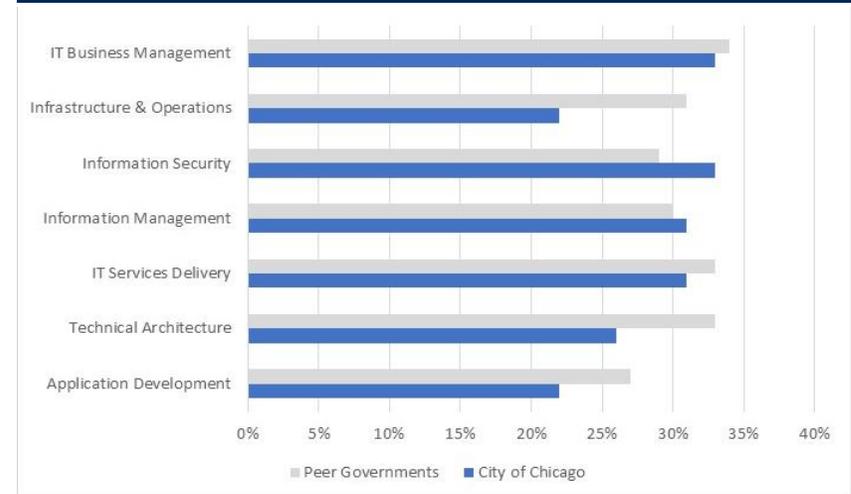
IT at the City of Chicago is **under-staffed compared to peer governments** and **overall IT skills proficiency is slightly behind peers**. This situation is further exacerbated by a **high retirement risk** (32% of staff have a 20+ year tenure) and the City's inability to recruit and retain employees due to **outdated position titles** that are misaligned with market competitive titles and compensation.

IT FTEs as a Percentage of Total City Employees



The City has too few IT staff when compared to other cities

% of Experts by Technical Proficiency



Aside from Information Security and Information Management, the City's IT skills proficiency is behind other cities

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

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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
6.1	Refresh Position Titles to Support the City's IT Modernization Initiatives*	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ HR ▪ OBM ▪ AIS 	Immediate	Medium	640 hours	One time: \$100k - \$200k (compensation analysis)
							Ongoing: NA
6.2	Recruit High Priority IT Lead / Staff Positions*	<ul style="list-style-type: none"> ▪ Post positions on premium sites that attract IT professionals and conduct the recruiting process. 	<ul style="list-style-type: none"> ▪ HR ▪ AIS 	Immediate	Medium	1,600 hours (to fill vacancies over time)	One time: NA
							Ongoing: NA
6.3	Update IT Training Program to Address Skills Gaps	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ 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.

Contd. ...

Goal 6: Empower & Inspire a Capable and Engaged Workforce

Summary Action Plan

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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
6.4	Establish Succession Plan to Mitigate Retirement Risks	<ul style="list-style-type: none"> ▪ 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.) 	<ul style="list-style-type: none"> ▪ AIS ▪ HR 	Mid-Term	Medium	960 hours	<i>One time: \$200k - \$300k (succession program design)</i>
							<i>Ongoing: NA</i>

* Initiatives 6.1 and 6.3 should be completed in coordination with each other.

Goal 1: Reimagine Workforce & Processes**Goal 2:** Leverage Data to Spur Innovation**Goal 3:** Transform City Infrastructure**Goal 4:** Put People at the Center**Goal 5:** Collaborate to Innovate**Goal 6:** Empower & Inspire**Goal 7:** Ensure Equity & Accessibility

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**.

Goal 1: Reimagine Workforce & Processes

Goal 2: Leverage Data to Spur Innovation

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Goal 4: Put People at the Center

Goal 5: Collaborate to Innovate

Goal 6: Empower & Inspire

Goal 7: Ensure Equity & Accessibility



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

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

Ref #	Key Activities	Description	Key Participants	Action Timeframe	Complexity	Estimated City Hours	Estimated External Cost
7.1	Extend Accessibility Standards and Multi-Lingual Capabilities	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ AIS 	Short-Term	Medium	1 FTE	One time: N/A
							Ongoing: N/A
7.2	Define Digital Equity Targets & Metrics	<ul style="list-style-type: none"> ▪ 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). 	<ul style="list-style-type: none"> ▪ AIS ▪ Office of Equity and Racial Justice ▪ Mayor’s Office 	Immediate	Medium	320 hours	One time: N/A
							Ongoing: N/A
7.3	Apply Digital Equity Metrics to Modernization Initiatives	<ul style="list-style-type: none"> ▪ 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.). 	<ul style="list-style-type: none"> ▪ AIS ▪ Office of Equity and Racial Justice ▪ Mayor’s Office ▪ Chief Data Officer 	Short-Term	Medium	Ongoing	One time: N/A
							Ongoing: N/A

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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?



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*About the IT Strategic Plan**Implementation Roadmaps**Initiative 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?** **PURPOSE**

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.

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PLAN DEVELOPMENT PROCESS

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

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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.

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BENEFITS TO CITY DEPARTMENTS & EMPLOYEES

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.

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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.

Vision

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Goal 1: Reimagine Workforce & Processes

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 **IMPLEMENTATION ROADMAPS**

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.

Implementation Roadmap

Goals 1 & 2

	Phase 1			Phase 2					Phase 3											
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2025	2026	2027	2028	2029	2030
1.0 Reimagine Workforce & Processes																				
1.1 Relaunch Technology Strategy Group (TSG)	Priority	Priority	Ongoing																	
1.2 Improve & Deploy Citywide IT Operating Model		Priority	Priority	Priority																
1.3 Hire Business Relationship Managers (BRM) to Improve Central-IT and Department Collaboration			Priority	Priority	Ongoing															
1.4 Mature City's Change Management and Business Process Improvement Capabilities				Standard	Standard	Standard	Standard	Standard	Standard	Ongoing										
2.0 Leverage Data to Spur Innovation																				
2.1 Design and Implement Data & Analytics Strategy		Priority	Standard																	
2.2 Establish City-Wide Data Governance and Ownership			Priority	Standard	Standard	Standard	Standard	Standard	Standard	Ongoing										
2.3 Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing				Standard	Standard	Standard	Standard	Standard	Standard	Ongoing										
2.4 Deploy Cross-Department Master Data Management Plan																				
2.5 Define Analytics Use Cases to Increase Business Value from Data				Standard																
2.6 Establish City-Wide Data Literacy Program													Ongoing							

Legend

Priority/ Quick Win
 Standard Initiative

 Ongoing

Implementation Roadmap

Goal 3

	Phase 1			Phase 2					Phase 3											
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2025	2026	2027	2028	2029	2030
3.0 Transform City Infrastructure																				
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

	Phase 1			Phase 2						Phase 3												
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2025	2026	2027	2028	2029	2030		
4.0 Put People at the Center																						
4.1 Build a Digital Services Team*	Priority/ Quick Win					Standard Initiative																
4.2 Develop a Playbook for Delivery				Standard Initiative																		
4.3 Use Resident Feedback to Prioritize Digital Services				Standard Initiative																		
4.4 Incrementally Deliver Public Services (Platform Approach)				Standard Initiative				Standard Initiative														
5.0 Collaborate to Innovate																						
5.1 Identify Vendor Services Needed to Support Modernization							Standard Initiative															
5.2 Prioritize and Define Scope for Vendor Services													Standard Initiative									
5.3 Procure Necessary Procurement Services														Standard Initiative								

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

Legend

Priority/ Quick Win
 Standard Initiative

 Ongoing

Implementation Roadmap

Goals 6 & 7

	Phase 1			Phase 2					Phase 3											
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2025	2026	2027	2028	2029	2030
6.0 Empower & Inspire																				
6.1 Refresh Position Titles to Support the City's IT Modernization Initiatives*	Priority/ Quick Win																			
6.2 Recruit High Priority IT Lead / Staff Positions*					Priority/ Quick Win					Ongoing										
6.3 Update IT Training Program to Address Skills Gaps				Standard Initiative										Ongoing						
6.4 Establish Succession Plan to Mitigate Retirement Risks					Standard Initiative															
7.0 Ensure Equity & Accessibility																				
7.1 Extend Accessibility Standards and Multi-Lingual Capabilities			Standard Initiative										Ongoing							
7.2 Define Digital Equity Targets & Metrics				Standard Initiative										Ongoing						
7.3 Apply Digital Equity Metrics to Modernization Initiatives					Standard Initiative															

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

Legend

Priority/ Quick Win
 Standard Initiative

 Ongoing

Implementation Roadmap

Phase 1 Initiatives

	Phase 1		
	Q3	Q4	Q1
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			
2.0 Leverage Data to Spur Innovation			
2.1 Design and Implement Data & Analytics Strategy			
2.2 Establish City-Wide Data Governance and Ownership			
2.6 Establish City-Wide Data Literacy Program			
3.0 Transform City Infrastructure			
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)			
3.1.5 Create Detailed Plan for Modernization Efforts			
4.0 Put People at the Center			
4.1 Build a Digital Services Team*			
6.0 Empower & Inspire			
6.1 Refresh Position Titles to Support the City's IT Modernization Initiatives			
7.0 Ensure Equity & Accessibility			
7.1 Extend Accessibility Standards and Multi-Lingual Capabilities			

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

Legend

Priority/ Quick Win
 Standard Initiative
 Ongoing

Implementation Roadmap

Phase 2 Initiatives (1 of 2)

	Phase 2					
	Q2	Q3	Q4	Q1	Q2	Q3
1.0 Reimagine Workforce & Processes						
1.3 Hire Business Relationship Managers (BRM) to Improve Central-IT and Department Collaboration	Priority/ Quick Win					
1.4 Mature City's Change Management and Business Process Improvement Capabilities						Standard Initiative
2.0 Leverage Data to Spur Innovation						
2.1 Design and Implement Data & Analytics Strategy						Standard Initiative
2.2 Establish City-Wide Data Governance and Ownership						Standard Initiative
2.3 Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing						Standard Initiative
2.4 Deploy Cross-Department Master Data Management Plan						Standard Initiative
2.5 Define Analytics Use Cases to Increase Business Value from Data						Standard Initiative
2.6 Establish City-Wide Data Literacy Program						Standard Initiative
3.0 Transform City Infrastructure						
3.1.2 Improve Application Portfolio Governance						Standard Initiative
3.1.3 Right Size Application Portfolio						
3.1.3.1 Implement Modernization Group 1 (Rehost)						Standard Initiative
3.1.3.2 Implement Modernization Group 2 (Revise)						Standard Initiative
3.1.3.3 Implement Modernization Group 3 (Re-Architect)						Standard Initiative
3.1.3.4 Implement Modernization Group 4 (Replace)						Standard Initiative
3.1.3.5 Implement Modernization Group 5 (Continuous)						Standard Initiative
3.1.4 Define Cloud Migration Approach & Procure Vendor Support						Standard Initiative
3.1.5 Create Detailed Plan for Modernization Efforts						Standard Initiative
3.2.1 Develop A Hybrid Multi-Cloud Infrastructure Strategy						Standard Initiative

Legend

■ Priority/ Quick Win
 ■ Standard Initiative
 ↻ Ongoing

Implementation Roadmap

Phase 2 Initiatives (2 of 2)

	Phase 2					
	Q2	Q3	Q4	Q1	Q2	Q3
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						
6.0 Empower & Inspire						
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						
7.0 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						

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

Legend

Priority/ Quick Win
 Standard Initiative
 Ongoing

Implementation Roadmap

Phase 3 Initiatives

	Phase 3											
	Q4	Q1	Q2	Q3	Q4	2025	2026	2027	2028	2029	2030	
2.0 Leverage Data to Spur Innovation												
2.4 Deploy Cross-Department Master Data Management Plan	Standard Initiative											
2.5 Define Analytics Use Cases to Increase Business Value from Data	Standard Initiative											
3.0 Transform City Infrastructure												
3.1.3 Right Size Application Portfolio												
3.1.3.1 Implement Modernization Group 1 (Rehost)	Standard Initiative					Ongoing						
3.1.3.2 Implement Modernization Group 2 (Revise)	Standard Initiative					Ongoing						
3.1.3.3 Implement Modernization Group 3 (Re-Architect)	Standard Initiative					Ongoing						
3.1.3.4 Implement Modernization Group 4 (Replace)	Standard Initiative					Ongoing						
3.1.3.5 Implement Modernization Group 5 (Continuous)	Standard Initiative											
4.0 Put People at the Center												
4.1 Build a Digital Services Team	Standard Initiative											
4.4 Incrementally Deliver Public Services (Platform Approach)	Standard Initiative											
5.0 Collaborate to Innovate												
5.1 Identify Vendor Services Needed to Support Modernization	Standard Initiative											
5.2 Prioritize and Define Scope for Vendor Services	Standard Initiative			Ongoing								
5.3 Procure Necessary Services	Standard Initiative											
6.0 Empower & Inspire												
6.4 Establish Succession Plan to Mitigate Retirement Risks	Standard Initiative					Ongoing						

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.

Goal #	Goal Description	Role	# of FTEs*
1	Reimagine Workforce & Processes	Business Relationship Managers (BRM)	15-20
1	Reimagine Workforce & Processes	Change Management Specialist	2-4
1	Reimagine Workforce & Processes	Business Process engineers	2-4
1	Reimagine Workforce & Processes	IT Vendor Managers	2-4
2	Leverage Data to Spur Innovation	Data & Analytics Program Manager	1-2
2	Leverage Data to Spur Innovation	Information Architect	1-2
2	Leverage Data to Spur Innovation	Data Engineer	1-2
2	Leverage Data to Spur Innovation	Data Scientists	1-2
2	Leverage Data to Spur Innovation	Data Analysts	1-2
4	Put People at the Center	Digital Services Team (e.g., UX Designers, Customer Experience Specialists, Content Managers, etc.)	10-15
4	Put People at the Center	Digital Services Delivery Manager/Specialist	1-2

*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

Goal #	Goal Description	Role	# of FTEs*
3	Transform City Infrastructure	Decommissioning Project Manager	1-2
3	Transform City Infrastructure	Cloud Center of Excellence Strategist/Analyst	1-2
3	Transform City Infrastructure	IAM Architect	1-2
3	Transform City Infrastructure	Access Managers	1-2
3	Transform City Infrastructure	IT Security Enterprise Architect	1-2
3	Transform City Infrastructure	IT Security Enterprise Architect (threat hunting)	1-2
3	Transform City Infrastructure	Cloud Architects	1-2
3	Transform City Infrastructure	Data Center Director	1-2
3	Transform City Infrastructure	Data Center Engineers	2-3
3	Transform City Infrastructure	Data Center Admin	2-3
3	Transform City Infrastructure	Telecom Specialists	2-3
3	Transform City Infrastructure	Network Engineers	1-2
3	Transform City Infrastructure	Fiber Optics/Writing Specialists	1-2
3	Transform City Infrastructure	Enterprise Architects	2-4
3	Transform City Infrastructure	Business Analysts	2-4
3	Transform City Infrastructure	Program Managers	2-4

*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.

Vision

Executive Summary

Goals & Key Initiatives

Additional Information

*About the IT Strategic Plan**Implementation Roadmaps**Initiative Details*

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

Goal 2: Leverage Data to Spur Innovation

Goal 3: Transform City Infrastructure

Goal 4: Put People at the Center

Goal 5: Collaborate to Innovate

Goal 6: Empower & Inspire

Goal 7: Ensure Equity & Accessibility

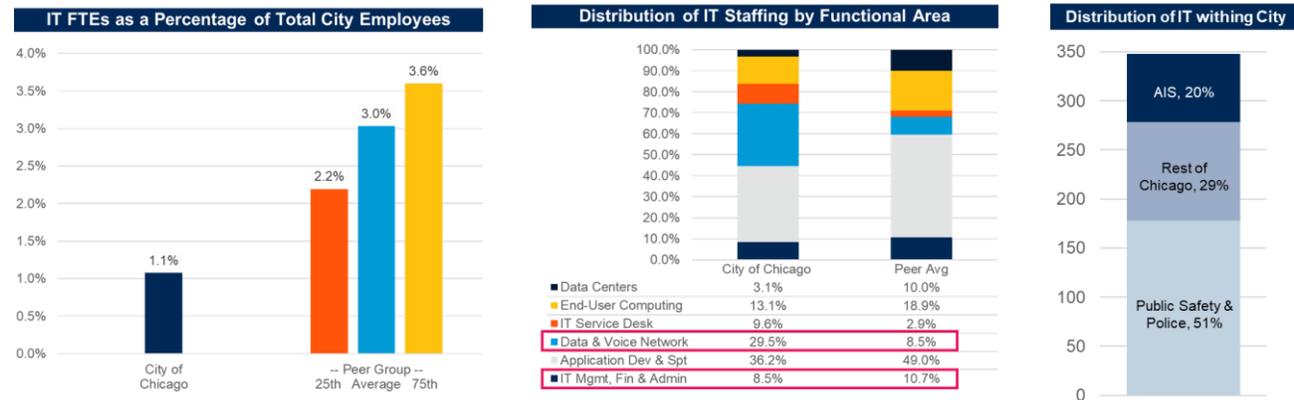
Goal 1: Reimagine Workforce & Processes

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.

Distribution of IT workforce at the City and against benchmark of comparable Cities in North America



Key Initiatives:

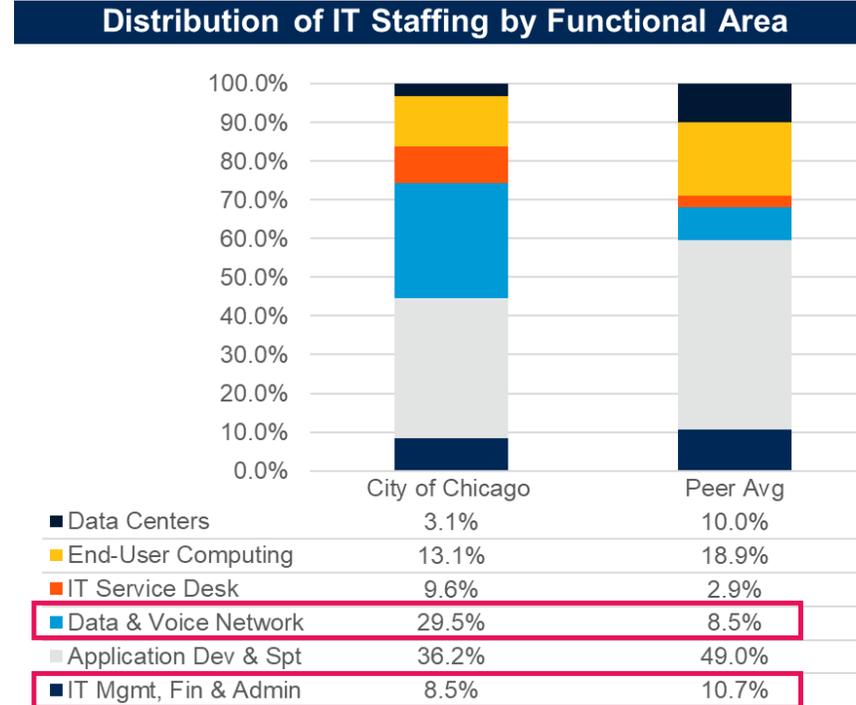
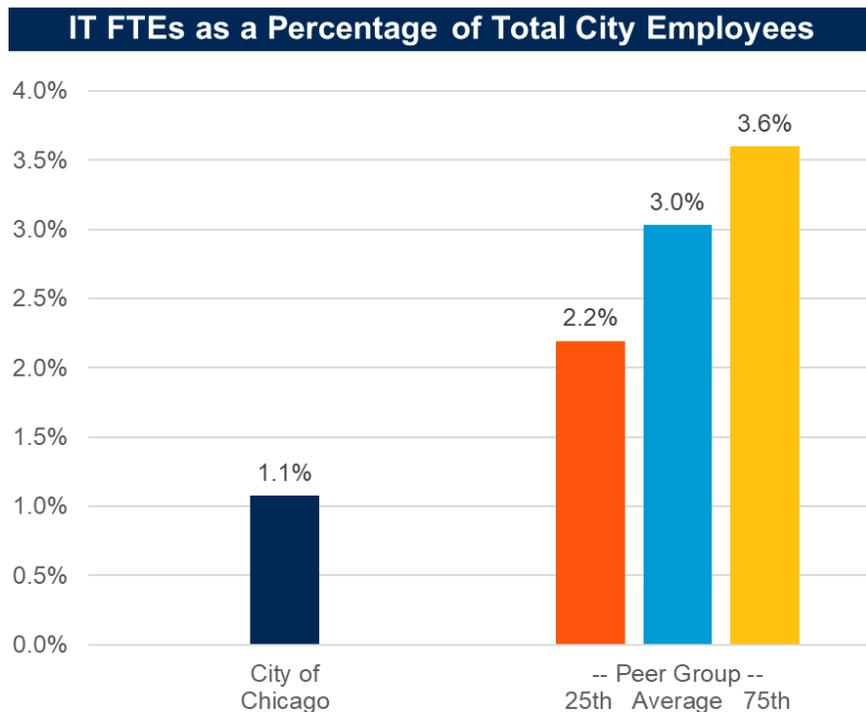
- 1.1 – Relaunch Technology Strategy Group
- 1.2 – Improve & Deploy Citywide IT Operating Model
- 1.3 – Hire Dedicated Business Relationship Managers to Improve Central-IT and Department Collaboration
- 1.4 – Mature City’s Change Management and Business Process Improvement Capabilities

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





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
<ul style="list-style-type: none"> 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.

Key Activities	Description
Review and refresh the TSG objectives and responsibilities	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

Timeframe	0 – 6 months	One time Cost	NA
Complexity	Low	Ongoing Cost	NA

Owner	Core Duration
AIS Commissioner	4 Months

Execution Team	Key Dependencies
<ul style="list-style-type: none"> CTO Department heads PMO 	<ul style="list-style-type: none"> N/A

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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

Key Artifacts Delivered
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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. 	
<ul style="list-style-type: none"> 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. 	
<ul style="list-style-type: none"> 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	Description
Design target state operating model	<ul style="list-style-type: none"> Define overarching operating model design principles Evaluate potential operating model patterns Define high level target state for each operating model component and their interdependencies aligned to digital/IT ambition
Assess Gaps and Organizational Readiness	<ul style="list-style-type: none"> Perform maturity/readiness assessment of the 9 components based on defined target state Review against digital-it strategy and Gartner best practices and prioritize key areas for change Complete skills readiness assessment of current IT staff against the target state needs
Develop implementation plan	<ul style="list-style-type: none"> Define key recommendations around selected areas utilizing industry best practices Outline high level implementation considerations in terms of time, investment, benefit and complexity/change Synthesize findings across dimensions and prioritize implementation activities required to reach target state
Implement	<ul style="list-style-type: none"> Propose pilots to test operating model changes before they are deployed more widely Deploy pilots to test the operating model changes and iterate

Timeframe	0 – 6 months	One time Cost	\$250 – \$500k
Complexity	High	Ongoing Cost	TBD
Owner		Core Duration	
AIS Commissioner		4 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> CIO CTO Department heads 		<ul style="list-style-type: none"> N/A 	

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> Operating Model Design Principles High Level Target Operating Model Implementation Plan Selected Pilots

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



"How We Do Things Around Here"

Source: Gartner research

- 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.

Goal 1: Reimagine Workforce & Processes

Initiative: 1.2 – Improve & Deploy Citywide IT Operating Model

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.

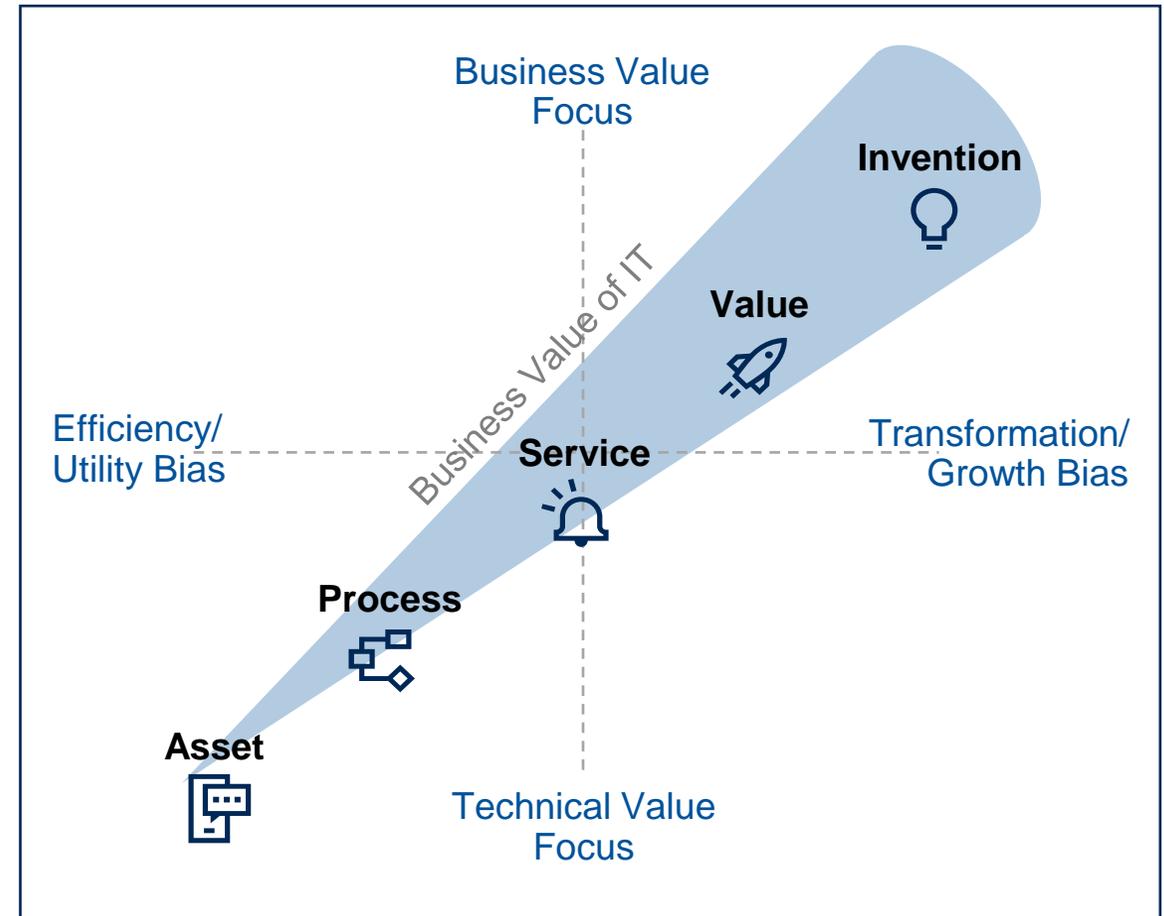
The figure depicts Gartner's **five IT operating model patterns** on a grid depicting their **focus** (defining value focused on business outcomes versus technical outcomes) and **investment bias** (back-office efficiency versus front-office growth and transformation).

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.

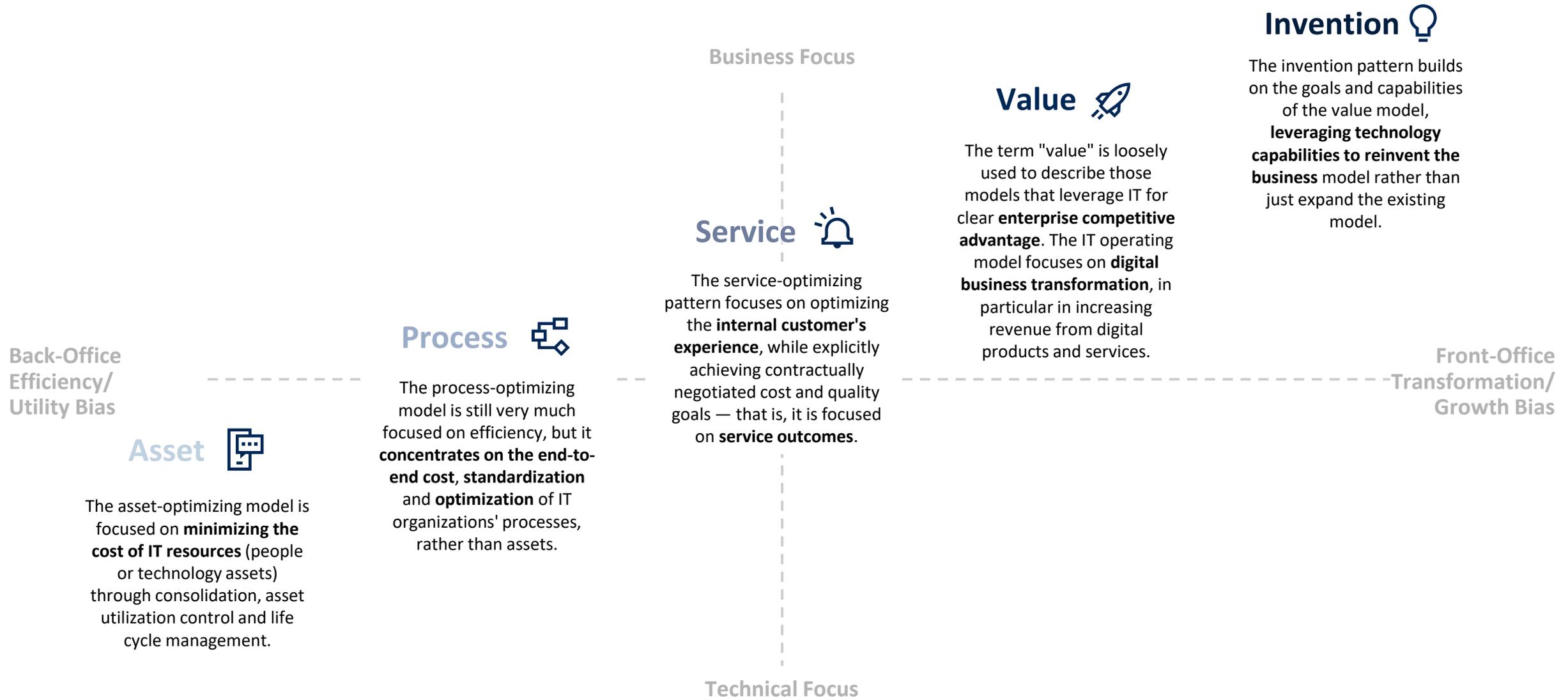
Each pattern progressively becomes **more tightly linked to the business and business outcomes**, increasingly focusing on front-office exploitation of IT.

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



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.



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
<ul style="list-style-type: none"> 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.

Key Activities	Description
Develop the organizational structure for a BRM	<ul style="list-style-type: none"> Define the required processes for an ITSC customer relationship organization that can serve as the champion of business needs with central IT Define the role of a business relationship manager and/or business analyst Define and document the RACI for the identified customer relationship management processes Conduct a pilot for the customer relationship management process
Define the job specifications	<ul style="list-style-type: none"> Job specification may need to be developed for the role which is further customized for each department 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
Recruiting and Hiring	<ul style="list-style-type: none"> Once the necessary approvals have been received, advertise the job posting through appropriate channels to attract qualified candidates 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
Evaluate and iterate	<ul style="list-style-type: none"> 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

Timeframe	0 – 6 months	One time Cost	\$250 – \$500k
Complexity	High	Ongoing Cost	TBD
Owner		Core Duration	
CTO		3 – 4 months to define the RACI model	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> Department service leads HR 		<ul style="list-style-type: none"> 1.2 IT Operating Model 6.1 Refresh position titles 	

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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



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	
<ul style="list-style-type: none"> 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	Description
Develop a Change Management Plan	<ul style="list-style-type: none"> 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
Develop a dedicated change management team	<ul style="list-style-type: none"> 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
Model business processes across different units	<ul style="list-style-type: none"> 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
Deploy business process engineers	<ul style="list-style-type: none"> Hire and deploy business process engineers to measure the processes and make improvement recommendations

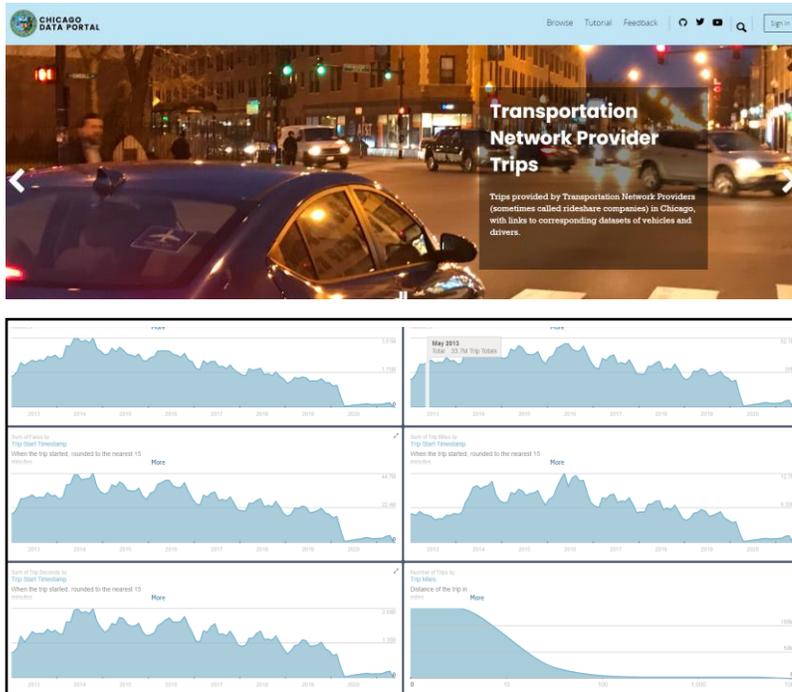
Timeframe	6 months +	One time Cost	\$1M+
Complexity	High	Ongoing Cost	\$500k – \$1M p.a
Owner		Core Duration	
CTO		3 – 4 months to develop and communicate change management plan	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> AIS Change Management Specialists Business Process Engineers Enterprise Architect 		<ul style="list-style-type: none"> 1.2 IT Operating Model 6.1 Refresh position titles 	
Execution Guidance and Assumptions			
<ul style="list-style-type: none"> 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			
<ul style="list-style-type: none"> 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 needs 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



Taxi Dashboard

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

Overview
<ul style="list-style-type: none"> The City has made strides in its efforts to establish data protocols at a departmental level. To achieve its modernization goals the City will need to establish an enterprise-wide data strategy to enable better information sharing throughout the City. This initiative focuses on the development of a formal cross-departmental data and analytics strategy and operating model. This initiative assesses the current state use and maturity of data across departments, defines the vision and strategic outcomes that will be achieved through data, and defines how data and analytics will be delivered across the city (capabilities, roles, processes, etc.).

Timeframe	0 – 6 months	One time Cost	\$250k - \$500k
Complexity	Low	Ongoing Cost	NA
Owner		Core Duration	
Chief Data Officer		3-4 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> Data & Analytics Program Manager Departmental Stakeholders Information Architect 		<ul style="list-style-type: none"> N/A 	

Key Activities	Description
Conduct Data & Analytics Current State Assessment	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Define target state vision and strategic outcomes that Data & Analytics will enable
Create Data & Analytics Target State Design	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 3–4-month duration based on the number of departmental stakeholders that would be involved

Key Artifacts Delivered
<ul style="list-style-type: none"> Data & Analytics Vision and Strategies Data & Analytics Operating Model Data & Analytics Action Plan

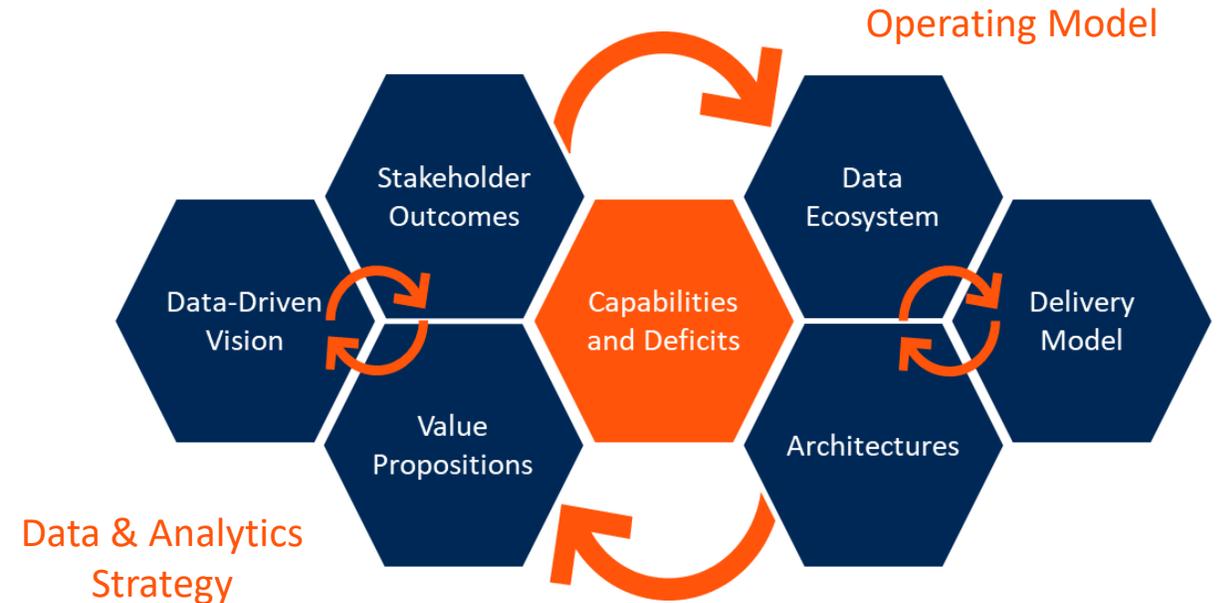
Goal 2: Leverage Data to Spur Innovation

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.





Goal 2: Leverage Data to Spur Innovation

- 2.1 – Design and Implement Data & Analytics Strategy
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- 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
<ul style="list-style-type: none"> ▪ 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.

Key Activities	Description
Define Vision	<ul style="list-style-type: none"> ▪ Define vision and priorities for Data Governance (what does success look like) ▪ Identify and plan for the scaling of Data & Analytics governance activities
Design Data & Analytics Target State	<ul style="list-style-type: none"> ▪ Design target state data governance decision accountabilities framework ▪ Design target state end-to-end data governance enforcement framework
Create Action Plan	<ul style="list-style-type: none"> ▪ Establish and deploy key governance bodies and roles, including data stewards ▪ 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, Stata Sourcing Policy, Data Privacy/Protection Policy, Data Retention Policy, etc.)

Timeframe	6 – 12 months	One time Cost	< \$250k
Complexity	Low	Ongoing Cost	NA

Owner	Chief Data Officer	Core Duration	9-12 Months
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Execution Team	<ul style="list-style-type: none"> ▪ Chief Data Officer ▪ Departmental Stakeholders ▪ CTO, AIS Data Lead ▪ CISO 	Key Dependencies	<ul style="list-style-type: none"> ▪ Goal 2.1: Design and Implement Data & Analytics Strategy
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Execution Guidance and Assumptions
<ul style="list-style-type: none"> ▪ 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
<ul style="list-style-type: none"> ▪ Data Governance Vision and Strategies ▪ Data Governance Action Plan

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.

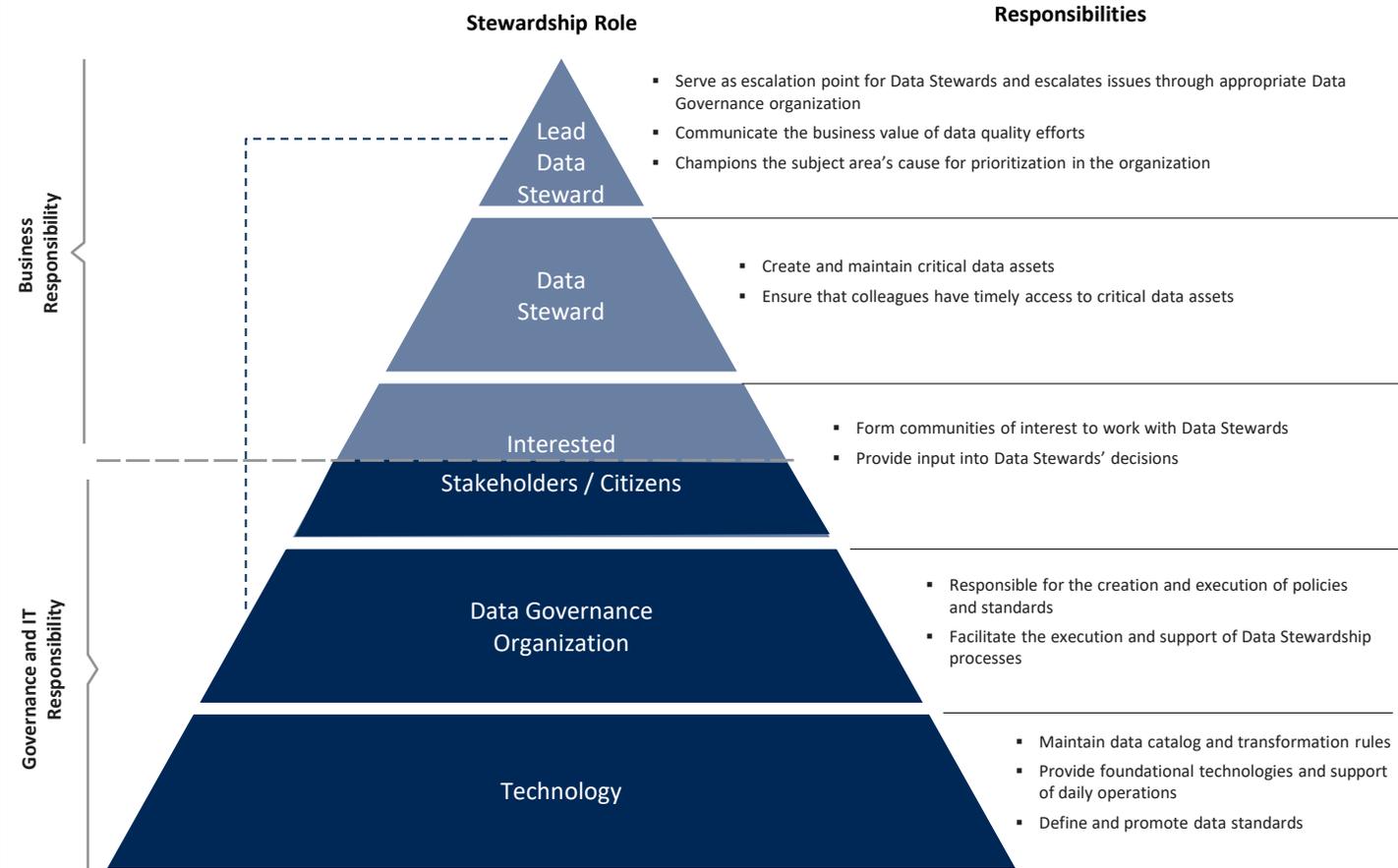
What is a Stewardship Model?

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



Goal 2: Leverage Data to Spur Innovation

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

Example Governance Body

Description			
Composition	Responsibilities / Accountabilities	Skills / Characteristics	Organizational Guidance
<ul style="list-style-type: none"> 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 			
Chair	<ul style="list-style-type: none"> Sets the agenda and facilitates Data Governance Council meetings 	<ul style="list-style-type: none"> Possess decision making authority 	<ul style="list-style-type: none"> Part Time Commitment This group should be comprised business representatives with appreciation for data Representation from across the business, technology and security should be accounted for
Members	<ul style="list-style-type: none"> Establishes data and analytics related standards, policies, procedures and guidelines Resolves cross-domain Stewardship issues Forms working groups <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Experience with data usage within the context of their business area Acknowledged expert and frequent contact on data Intimate knowledge of key business processes and how those processes are influenced by information Deep and comprehensive understanding of the importance and impact of data (or bad data) on the ability to meet business objectives High organizational credibility and respect; ability to communicate and influence the people around them 	<ul style="list-style-type: none"> Part Time Commitment Include those with tight organizational affinity to Data Governance

Goal 2: Leverage Data to Spur Innovation

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

Example Governance Role

Description		
<ul style="list-style-type: none"> ▪ The Information Architect is responsible for the overall design of the information architecture and development of the information-sharing strategy ▪ 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 		
Responsibilities / Accountabilities	Skills / Characteristics	Organizational Guidance
<ul style="list-style-type: none"> ▪ Determines overall data modeling standards, guidelines, best practices, and approved modeling techniques and approaches ▪ Oversees the documentation of all architecture design and analysis work ▪ 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 ▪ Supports solution development and Technology / Architecture selection activities and assesses technical architecture ▪ Provides specifications for physical components, hardware, and software ▪ Identifies and prioritizes critical data and analytics uses cases and assess their requirements relative to architectural needs 	<ul style="list-style-type: none"> ▪ Familiarity with advanced information management practices ▪ Interpersonal skills, including teamwork, facilitation, and negotiation skills and experience ▪ Excellent analytical and technical skills ▪ Familiarity with advanced modeling approaches, tools, and model repositories ▪ Ability to apply multiple solutions to business problems ▪ Ability to rapidly comprehend the functions and capabilities of new technologies ▪ Knowledge of multiple vendors, products, architectures and approaches 	<ul style="list-style-type: none"> ▪ Full-time commitment ▪ Tight affiliation with the development/ technology organization ▪ Works closely with technology to translate logical and physical models

Goal 2: Leverage Data to Spur Innovation

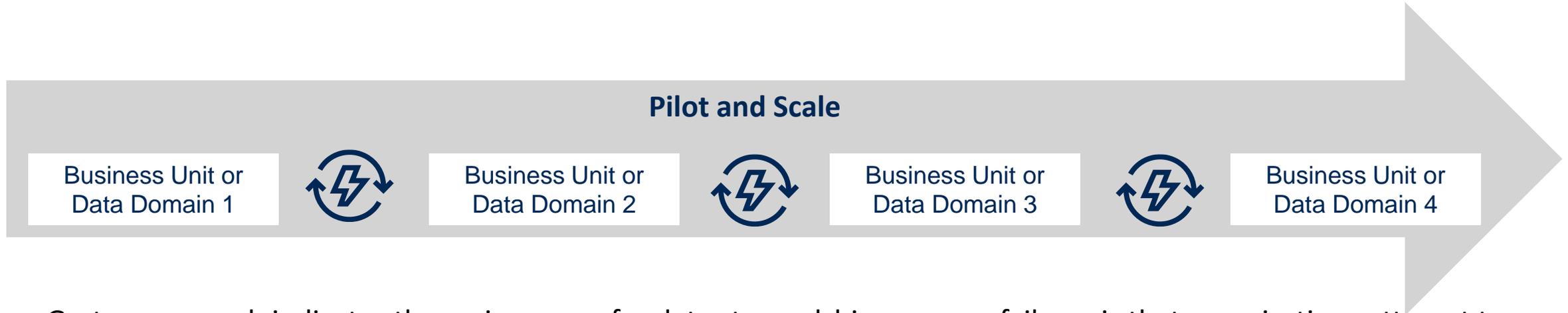
Initiative: 2.2 – Establish City-Wide Data Governance and Ownership

Example Governance Role

Description		
Responsibilities / Accountabilities	Skills / Characteristics	Organizational Guidance
<p>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.</p>		
<ul style="list-style-type: none"> Assess the current state of data accuracy, security, privacy and retention within their scope of responsibility Interpret and enforce activities to ensure target goals for data accuracy improvement and adherence with all other types of data governance policies Identify optimal approaches for resolving data quality or consistency issues to achieve targets Work within and beyond their immediate area to implement change in support of the adoption of data governance policies 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 Reports into the data governance council on escalations or updates on quality and policies Actively correct data quality flaws that cannot be addressed fully by automated means Provide input into the data governance council for improvements in the work of governance and stewardship 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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

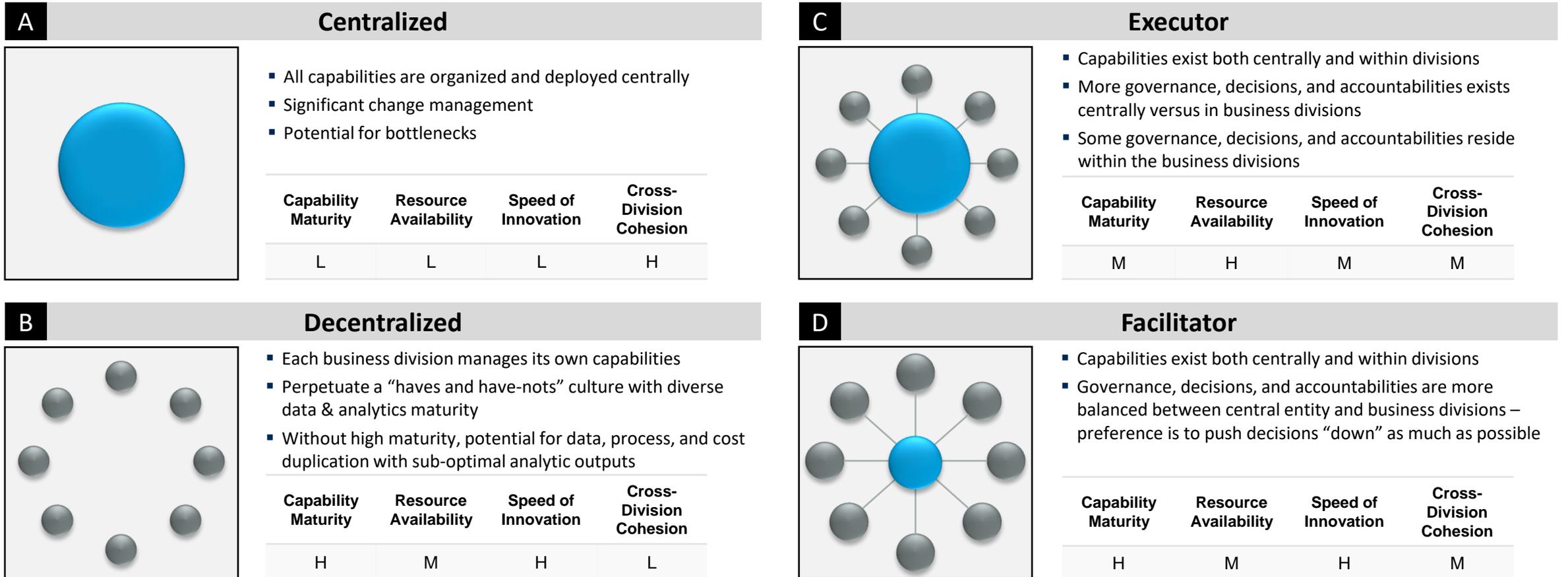
Initiative: 2.2 – Establish City-Wide Data Governance and Ownership



- 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.



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
<ul style="list-style-type: none"> 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.

Key Activities	Description
Define Vision	<ul style="list-style-type: none"> Define cross-departmental data platform vision and scope
Design Data & Analytics Current State	<ul style="list-style-type: none"> Assess current state information architecture and Data & Analytics platform Define enterprise self-service business requirements and translate requirements into conceptual data architecture (e.g., key use cases across personas) Conduct gap analysis to identify areas for improvement across all data and analytics platform components
Create Data & Analytics Standards	<ul style="list-style-type: none"> Establish enterprise Data & Analytics architectural principles, approach and standards Define data integration standards and techniques Develop a plan for executing on the implementation of the Data & Analytics platform target state architecture and technology
Deploy and Monitor	<ul style="list-style-type: none"> Incrementally configure and deploy enterprise data platform based on prioritized use cases and city data needs

Timeframe	6 – 12 months	One time Cost	\$1M +
Complexity	High	Ongoing Cost	\$250k - \$500k
Owner		Core Duration	
Chief Data Officer		6-9 months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> Chief Data Officer, Information Architect Data Engineer Departmental stakeholders CISO CTO 		<ul style="list-style-type: none"> Goal 2.5: Define Analytics Use Cases to Increase Business Value from Data 	

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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
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- 2.3 – Design and Deploy Cross-Department Data & Analytics Platform to Promote Data Sharing
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- 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
<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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.)

Timeframe	12 – 18 months	One time Cost	\$500k - \$1M
Complexity	High	Ongoing Cost	< \$250k
Owner		Core Duration	
Chief Data Officer		9-12 months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> Chief Data Officer Information Architect Data Engineer Departmental stakeholders 		<ul style="list-style-type: none"> 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	Description
Establish data domains	<ul style="list-style-type: none"> Identify and prioritize master data domains (e.g., citizen, employee, etc.)
Create data standards	<ul style="list-style-type: none"> Develop a common business taxonomy and nomenclature for the selected domain
Develop Master Data Management requirements	<ul style="list-style-type: none"> Develop Master Data Management department and technology requirements
Deploy and Monitor	<ul style="list-style-type: none"> Incrementally configure and deploy Master Data Management capability to harmonize and make master data accessible across remaining master data domains

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 9–12 month duration based on the number of departmental involved in setting up city wide Master Data Management solution

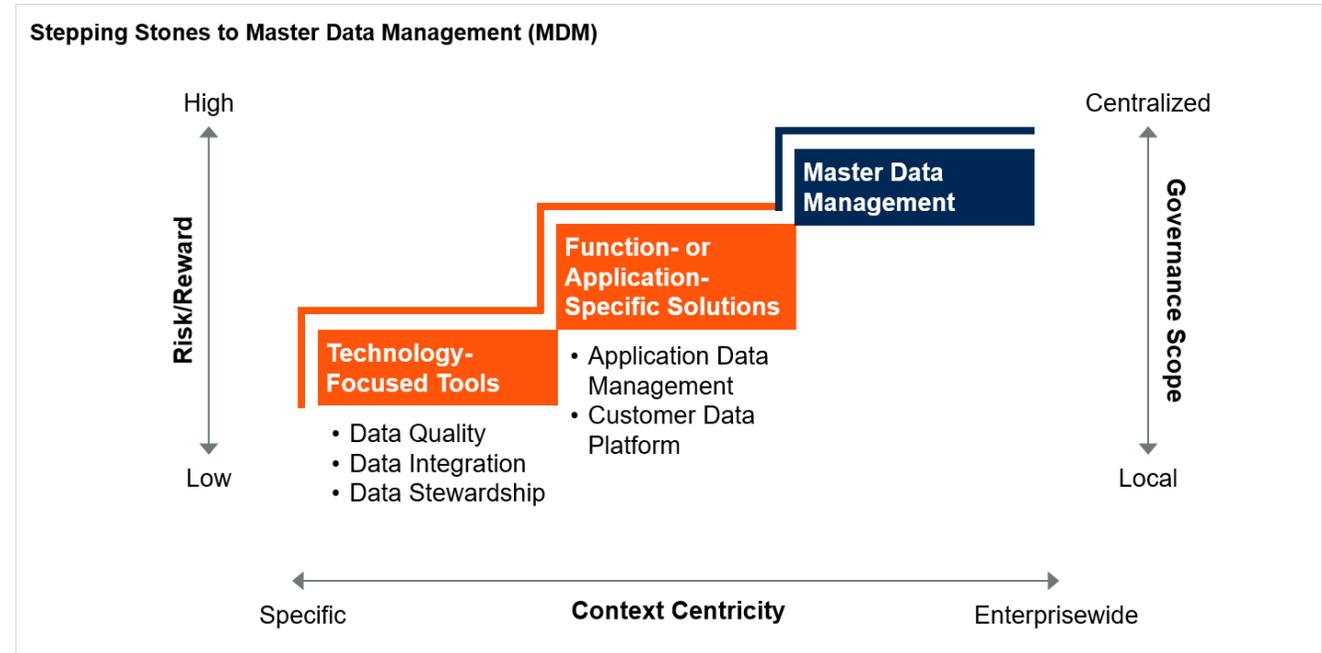
Key Artifacts Delivered
<ul style="list-style-type: none"> Data & Analytics Master Data Management Strategy Fully Deployed Master Data Management Solution

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.

Figure 2.1 – Stepping Stones to Master Data Management (MDM)





Goal 2: Leverage Data to Spur Innovation

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- 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	
<ul style="list-style-type: none"> 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. 	

Timeframe	12 – 18 months	One time Cost	<\$250k
Complexity	Low	Ongoing Cost	NA
Owner		Core Duration	
Chief Data Officer		9-12 months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> Chief Data Officer Information Architect Data Engineer Data Scientists Analysts 		<ul style="list-style-type: none"> 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 Activities	Description
Create Analytics Use Case Framework	<ul style="list-style-type: none"> Develop use case prioritization, process, framework and backlog that balances gathering use case information quickly with gathering enough information needed for prioritization
Identify Use Cases	<ul style="list-style-type: none"> Identify the universe of Data & Analytics use cases across departments Capture required prioritization information for each use case Understand and document challenges with executing existing use cases within the department (e.g., data requirements, skill requirements, tools, etc.)
Deploy Use Cases	<ul style="list-style-type: none"> Incrementally deploy Business Intelligence Minimum Viable Products
Deploy and Monitor	<ul style="list-style-type: none"> Incrementally execute and deploy predictive and prescriptive analytics Minimum Viable Products

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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

Key Artifacts Delivered
<ul style="list-style-type: none"> Data & Analytics Use Cases



Goal 2: Leverage Data to Spur Innovation

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Goal 2: Leverage Data to Spur Innovation

Initiative: 2.6 – Establish City-Wide Data Literacy Program

Overview
<ul style="list-style-type: none"> 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.

Timeframe	0 – 6 months	One time Cost	<\$250k
Complexity	Low	Ongoing Cost	<\$250k
Owner		Core Duration	
Chief Data Officer		6-9 months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> Information Architect Data Engineer Departmental Stakeholders 		<ul style="list-style-type: none"> N/A 	

Key Activities	Description
Define Data Literacy Strategy	<ul style="list-style-type: none"> Develop an understanding of current literacy capabilities and maturity levels across the organization Develop data literacy strategy and personas
Develop Curriculum	<ul style="list-style-type: none"> Develop data literacy curriculum and content Develop training structure, content, and cadence based on user personas
Deploy Content	<ul style="list-style-type: none"> Deploy data literacy curriculum and content
Monitor	<ul style="list-style-type: none"> Define data literacy KPIs Continuously baseline and benchmark data literacy for continuous improvement

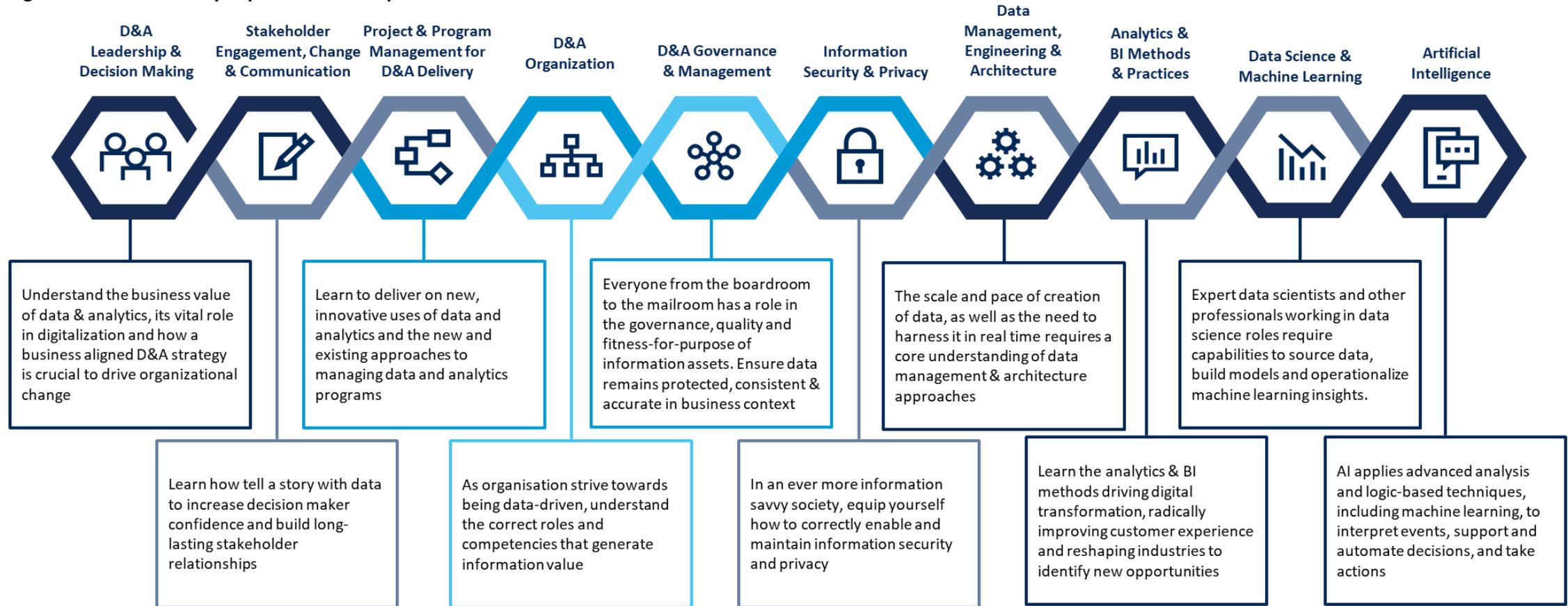
Execution Guidance and Assumptions
<ul style="list-style-type: none"> 6-9 months to come up with an initial data literacy launch followed by ongoing content creation and training
Key Artifacts Delivered
<ul style="list-style-type: none"> Data Literacy Program Strategy Data Literacy Action Plan

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

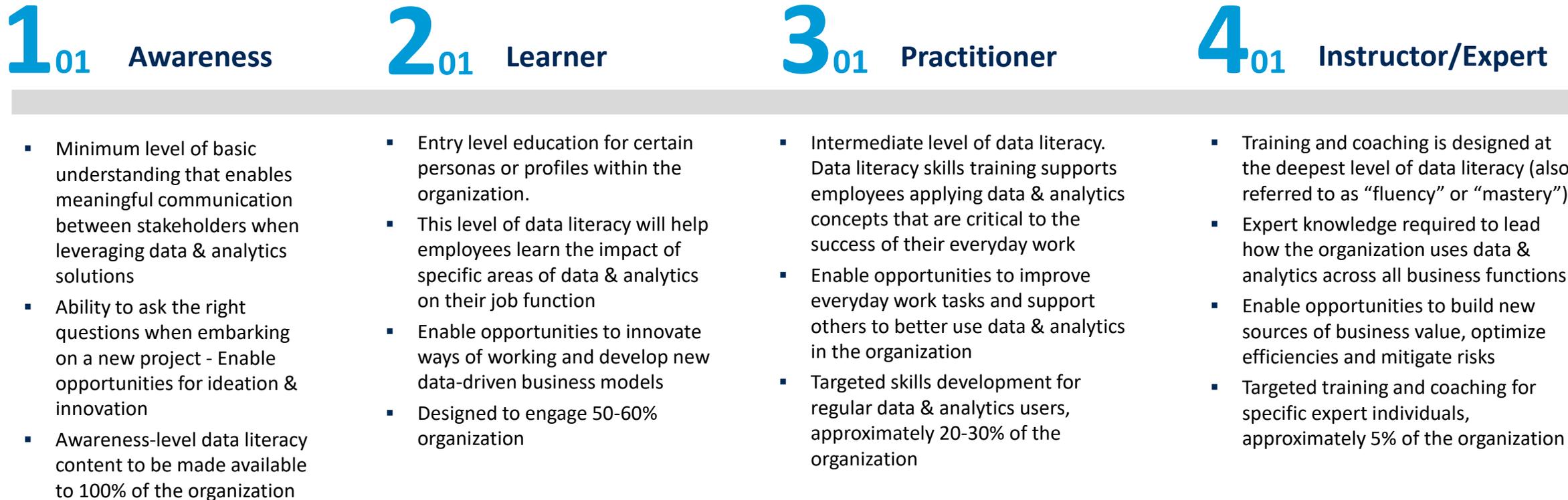


Source: Gartner research

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”



* Level 0 = Unaware

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.

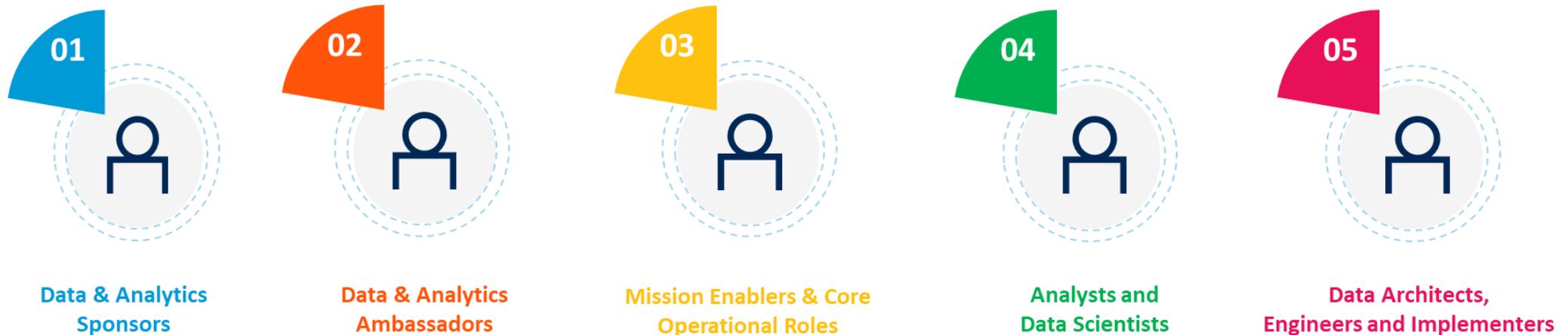


Figure 2.3 – Example Data Literacy Persona Archetypes

Goal 2: Leverage Data to Spur Innovation

Initiative: 2.6 – Establish City-Wide Data Literacy Program

Explanation of Archetype Data Literacy Personas

 <p>01</p>	<p>Data & Analytics Sponsors</p>	<p>Executive leadership who are primarily responsible for driving the strategic agenda of the organization. Understands the value and promotes the use of data & analytics, and actively uses and asks for data to support decision-making.</p>
 <p>02</p>	<p>Data & Analytics Ambassadors</p>	<p>Middle management or core staff who proactively identify mission opportunities and/or areas of growth involving data & analytics. Sponsors or leads efforts to share and/or collaborate with data & analytics both internal and external to the organization.</p>
 <p>03</p>	<p>Mission Enablers & Core Operational Roles</p>	<p>Core staff whose focus is to deliver the mission of the organization, and data & 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.</p>
 <p>04</p>	<p>Analysts and Data Scientists</p>	<p>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.</p>
 <p>05</p>	<p>Data Architects, Engineers and Implementers</p>	<p>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.</p>

Source: Gartner research



Goal 3: Transform City Infrastructure

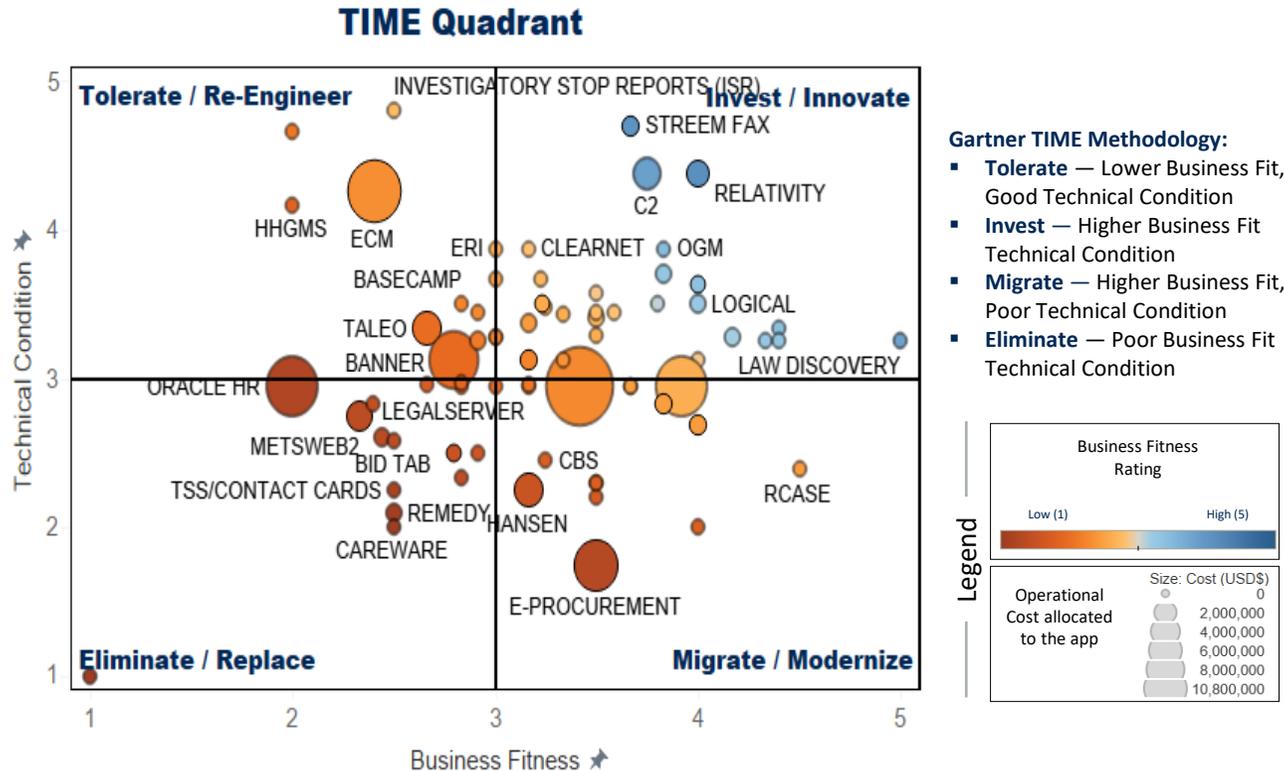
- 3.1 – Modernize Application Portfolio and Supporting Technologies
- 3.2 – Strengthen Technology Infrastructure, Integration & Security

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**.

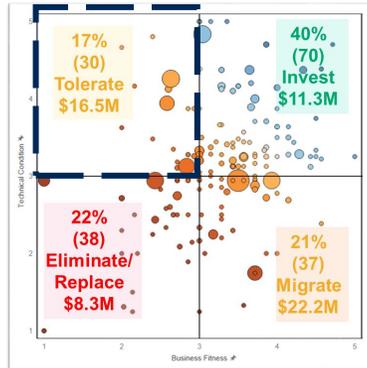
Exhibit 3.1 – Application Fitness and/or Technical Condition



- 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.

Goal 3: Transform City Infrastructure

Tolerate: requires significant efforts to improve overall functionality and perception among users

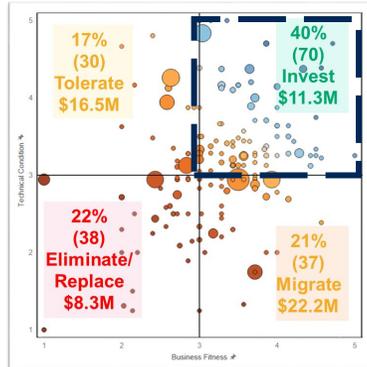


- These **27** applications are cost-effective in satisfying business needs at an acceptable level of risk and quality of service.
- As the placement in the matrix indicates, these applications have low-to-medium fit in satisfying business requirements, but medium-to-high alignment to technical standards.
- 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	Business Unit	Modernization Cause
AIRLINE REIMBURSEMENT	CDA	Functionality
ARCGIS	AIS BoIT, CDOT	Functionality
AUTO - SPAR	OIG	Technology
AUTO CR	OIG	Technology
BANNER	AIS BoIT, OIG, DWM, DPD, OIG	Architecture
CLEARNET	CPD, OIG	Functionality
COURT NOTIFICATION	OIG	Technology
CRIMINAL REGISTRATION	OIG	Technology
DTS DASHBOARD	OIG	Technology
ECM	AIS BoIT, CDPH, DFSS, MOPD	Functionality
ERI	CPD	Functionality
EVERBRIDGE MASS NOTIFICATION	CDA	Functionality
EVIDENCE.COM (BODY WORN CAMERA V	OIG	Functionality
FIELD TRAINING EVALUATION	OIG	Technology
FIREARM CERTIFICATION	OIG	Technology
FLEETFOCUS	AIS_non_BoIT, OIG	Functionality
FMS	CDA	Functionality
FUSION CENTER	OIG	Technology
HHGMS	CDPH	Functionality
INVESTIGATORY STOP REPORTS (ISR)	OIG	Functionality
IPS 11	CDOT, DOB, BACP	Functionality
MURAL REGISTRY	DCASE	Functionality
OFFICER ACTIVITY REPORTING	OIG	Technology
QMATIC	BACP	Functionality
TACTICAL REPORTS	OIG	Functionality
TRAFFIC COUNT	CDOT	Architecture
TRAFFIC TRACKER	CDOT	Functionality

Goal 3: Transform City Infrastructure

Invest: Look to adopt as future strategic platforms and find ways to further improve agility and efficiency (1 of 3)

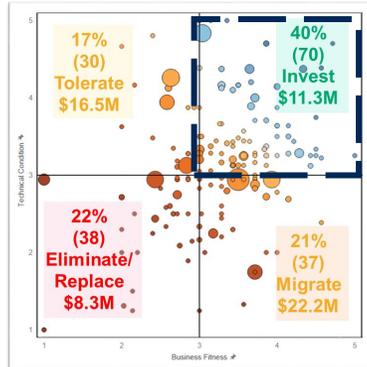


- These **74** applications are cost-effective in satisfying business needs at a low level of risk and high quality of service.
- As the placement in the matrix indicates, these applications have medium-to-high fit in satisfying business requirements, and medium-to-high alignment to technical standards.
- 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.**

Application Name	Business Unit
311 SALESFORCE	AIS BoIT, 311 City Services, DSS, CDOT, DPD ,OIG, DFSS, ACC
811	CDOT
ABILA	OIG
ACCESSDATA	OIG
ADOBE CREATIVE SUITE	AIS BoIT, AIS_non_BoIT, DCASE, DPS, CDOT OIG
ADT	CDOT
ARCHIVESPACE	CPL
ATMS	CDOT
AVOLVE	CDOT
BASECAMP	DCASE
BIBLIOCOMMONS	CPL
BMS	AIS_non_BoIT
C2	DPS, OIG
CAMS	AIS_non_BoIT
CDOT CONSTRUCTION SITE	CDOT
CDOT REIMBURSEMENTS	CDOT
CHAMELEON	ACC
CHAMP	DWM
CLEAR	OIG
COLUMN CASE MGMT	COPA, OIG
CONTENTDM	CPL
CONTRACTS DB	AIS_non_BoIT
DATA TRACKER WEB CLIENT	DPS
DEEFPREEZE	CPL
DIGGER	CDOT, 311 City Services
DMS	CDOT
DOTMAPS	CDOT

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)

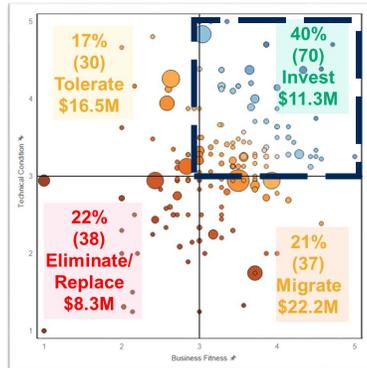


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- City should maintain/evolve application assets. It should look at these systems as future strategic platforms and identify whether there are ways to further improve agility and efficiency.**

Application Name	Business Unit
DSS SNOW SURVEY	DSS
DSS TRANSFER REQUEST	DSS
EDS	DPS
EDUCATION AND TRAINING DIVISION	OIG
EFI PRINTSMITH	AIS_non_BoIT
ELECTRONIC FINANCIAL INTEREST STATEMENTS (EFIS)	Board of Ethics
ENCASE FORENSICS	OIG
EPLAN	DOB, CDOT
ETHICS TASK FORCE FORUM	Board of Ethics
ETHICS TRAINING	Board of Ethics, AIS BoIT, CDA, CDOT
ETRAKKER	AIS_non_BoIT
EZPROXY	CPL
FARMERS MARKET	DCASE, AIS BoIT
FILM PERMITS	DCASE
FREIGHT & TROLLY	CDOT
GBMS	AIS_non_BoIT
GREENSLIPS	AIS BoIT, OIG
HOUSE SHARE REGISTRATION SYSTEM	BACP
HOUSING DEVELOPMENT PRO	CDPH
IDENTIPASS/PREMISYS	DWM
IPI	AIS BoIT
IRIS	DOF, BACP, CDA, CDOT, OIG, MOPD
LAW DISCOVERY	DOL
LAW ECOPIY	DOL
LAW FILE SHARE	DOL
LAW PRESERVATION	DOL
LCP TRACKER	DPS, DPD, OIG

Goal 3: Transform City Infrastructure

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

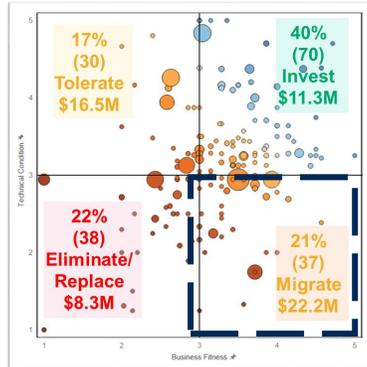


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Application Name	Business Unit
LITTLE GREEN LIGHT	DCASE
LOGICAL	DOL
M5	AIS_non_BoIT
MIP FUND ACCOUNTING SOFTWARE	OIG
MOTOROLA PREMIER 1	DSS
OGM	OBM
ORION	DWM
PARS	DFSS
PROCUREMENT TRACKING	Aviation
RELATIVITY	DOL
SCADA	CDOT
STREEM FAX	DWM
SYNCHRO PLUS SIMTRAFFIC 10	CDOT
TALEO	DHR, OIG
TIME OFF REQUEST PORTAL	AIS_non_BoIT
USERFUL	CDA
VENDOR REQUEST FORM F5-A, B, C INTERNAL WEBAPPS	DPS
VOLUNTOURS SYSTEM / GODADDY.COM	DCASE
WATER STREEM FAXING	DWM
WIKI APPLICATION- PERFORMANCE MEASURES	DPS

Goal 3: Transform City Infrastructure

Migrate: Reduce the scope of the application by pulling out functions and consider upgrade to newer platforms (1 of 2)

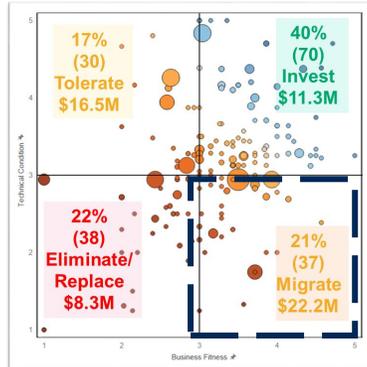


- These **43** applications are critical as providing value to the business but at high risk and high cost to maintain.
- As the placement in the matrix indicates, these applications have low-to-medium alignment to technical standards and a medium-to-high in satisfying business requirements.
- These 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.**

Application Name	Business Unit
1 CLEAR	DSS
AAAE-SIDA	CDA
AEC PROJECTS DB	AIS_non_BoIT
AIRPORT VETTING	CDA
AMC	CDA
BUDGET BOOK APPLICATION	OBM
CBS	OBM, DPD, OIG
CCM	CDOT
CHIPPS	DOF, CDOT, MOPD
CMAT	AIS BoIT (GIS), CDOT, DSS, OIG
DIRECTIVE(BUREAU OF ORGANIZATIONAL DEVELOPMENT)	CPD
E-INVOICING / CDOT PROJECTS	CDOT
E-PROCUREMENT	DOF
EEDMS	DHR
ELECTRONIC LOBBYIST FILING (ELF)	Board of Ethics
EMS ENTERPRISE	DCASE
FMPS	Finance, CDOT, DFSS, MOPD
HANSEN	CFD, AIS BoIT, CDPH, CDOT, DPD, OIG, MOPD
HR DATABASE - TIME AND ATTENDANCE	AIS_non_BoIT
INHOUSE CONSTRUCTION TIMESHEETS & W.O DB	CDOT
INTELEX	AIS_non_BoIT
KEYWATCHER	AIS_non_BoIT
MCC OVERTIME TRACKING	CDA
METERSAVE	DWM
MIDWAY OPS OVERTIME TRACKING	CDA
MTD OT TRACKER	CDA
MUGSHOT	CPD
OCC OVERTIME TRACKING APPLICATION	CDA

Goal 3: Transform City Infrastructure

Migrate: Reduce the scope of the application by pulling out functions and consider upgrade to newer platforms (2 of 2)

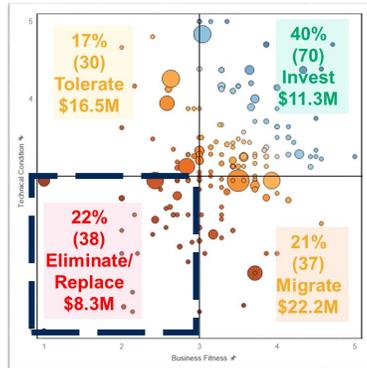


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- City should modernize these application assets. It should reduce the scope of the application by pulling out functions and consider upgrading to a newer platform/version to reduce IT risk and cost.**

Application Name	Business Unit
OPS OT	CDA
OVERTIME MANAGEMENT SYSTEM	AIS_non_BoIT
PASSAGEPOINT	DWM
PAYMENT VOUCHER	AIS_non_BoIT
PC RESERVATION AND PRINTING CONTROL	CPL
PIR	AIS_non_BoIT
RCASE	CPD
REMEDY	OIG
SHELFLIFE	CPL
STD PARKING TAX REVENUE	CDA
TAX GRANT	Office of the Mayor
VENDOR PORTAL APPLICATION	Aviation
VENDORS, CONTRACTS AND PAYMENTS	DPS
VOUCHER SYSTEM	CDOT
WATER METER READING	DWM

Goal 3: Transform City Infrastructure

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

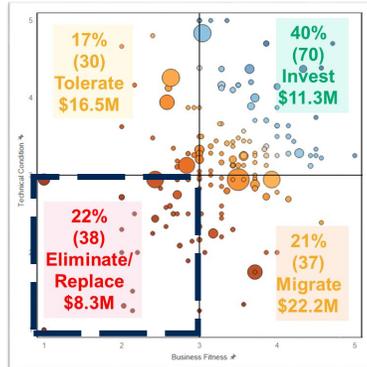


- These **32** applications no longer provide significant business value in a cost-effective way.
- As the placement in the matrix indicates, these applications have low-to-medium alignment to technical standards and a low-to-medium in satisfying business requirements. Low fitness does not mean that 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.**

Application Name	Business Unit
ADVANCED TAXI REGISTRATION	CDA
BID TAB	DPS
CAREWARE	CDPH
CDOT INTEL SIDEWALK	OIG
CHICAGO BUSINESS DIRECT	BACP
CITY MARKETS	DCASE
CLEARPATH	Police
CPM	OBM, CDOT, OIG
DISTRICT INTELLIGENCE BULLETIN (DIBS)	OIG
DPD/DOH PROJECT MANAGEMENT	DPD/DOH
FACILITIES DATABASE	AIS_non_BoIT
FINDMYCAR, HOMELESS REGISTERED SEX OFFENDERS, PROSTITUTION ARRESTSSQL SERVER DB FOR THE COMMUNITY CONCERNS, FILE STORE, & BIKE REGISTRATION APPS	Police
GRANT MANAGEMENT SYSTEM (GMS)	OIG
IN-HOUSE INVENTORY	CDOT
ISP	CDOT
JUMPING JACK	DCASE

Goal 3: Transform City Infrastructure

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

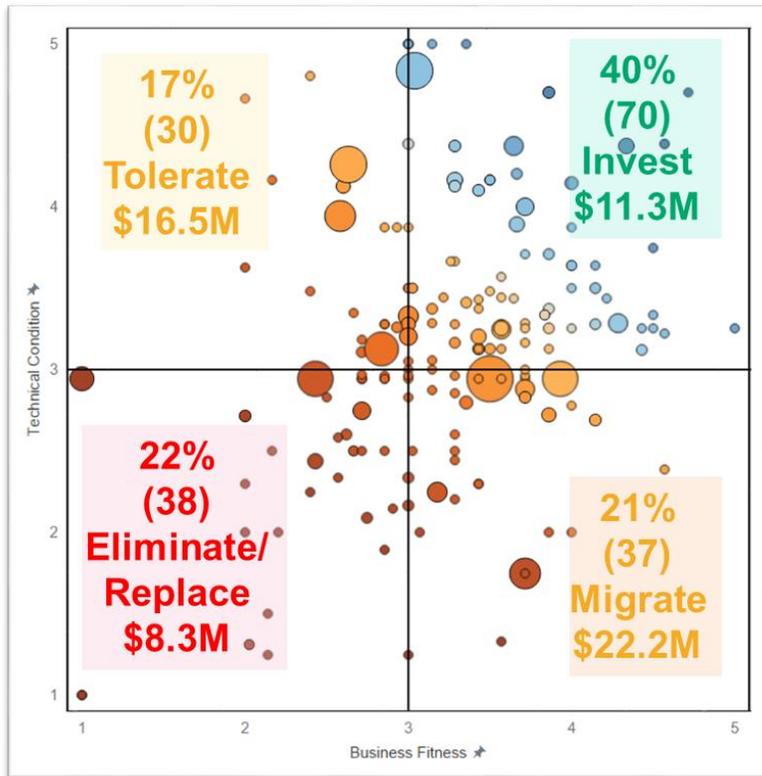


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- Considerations for this applications also include migration or consolidation or decommission, dependent on understanding business dependencies and dependencies with other systems first.
- City should retire/consolidate application assets. Replace the platform — either with a new system or with a system already installed that can provide similar capabilities is an effective strategy to employ.**

Application Name	Business Unit
LAND TRACKING	CDA
LEARNING MANAGEMENT SYSTEM	DHR
LEGAL CASE MANAGEMENT/TEAM CONNECT	DOL
LEGALSERVER	DHR
LICENSE EXPIRATION	CDA
METSWEB2	DAH
MIDWAY CONCESSIONS RFP DOCS	Aviation
OCC LICENSE EXPIRATION	CDA
OFFICER DEPLOYMENT	OIG
ORACLE HR	AIS BoIT
PUBLIC ART DATABASE SYSTEM: (FILEMAKER, GALLERY SYSTEMS)	DCASE
REMS	CDOT
SAFETY AND SECURITY	CDA
SMALL CLAIMS	CDOT
TSS/CONTACT CARDS	OIG
WEBMIS	OIG

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
<ul style="list-style-type: none"> Application Modernization is a long running program and requires 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		
Execution Team	<ul style="list-style-type: none"> AIS Departments 		
Core Duration	4 Months + ongoing execution		
Key Dependencies	<ul style="list-style-type: none"> N/A 		

Key Activities	Description
Build Team	<ul style="list-style-type: none"> Identify a dedicated project manager and team to oversee the multi-year application modernization effort
Develop modernization sequence	<ul style="list-style-type: none"> 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
Evaluate and monitor progress	<ul style="list-style-type: none"> Establish the governance process to define and measure metrics

Execution Guidance and Assumptions
<ul style="list-style-type: none"> NA

Key Artifacts Delivered
<ul style="list-style-type: none"> Approved modernization sequence Governance process to evaluate progress and remove hurdles to progress



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Goal 3: Transform City Infrastructure

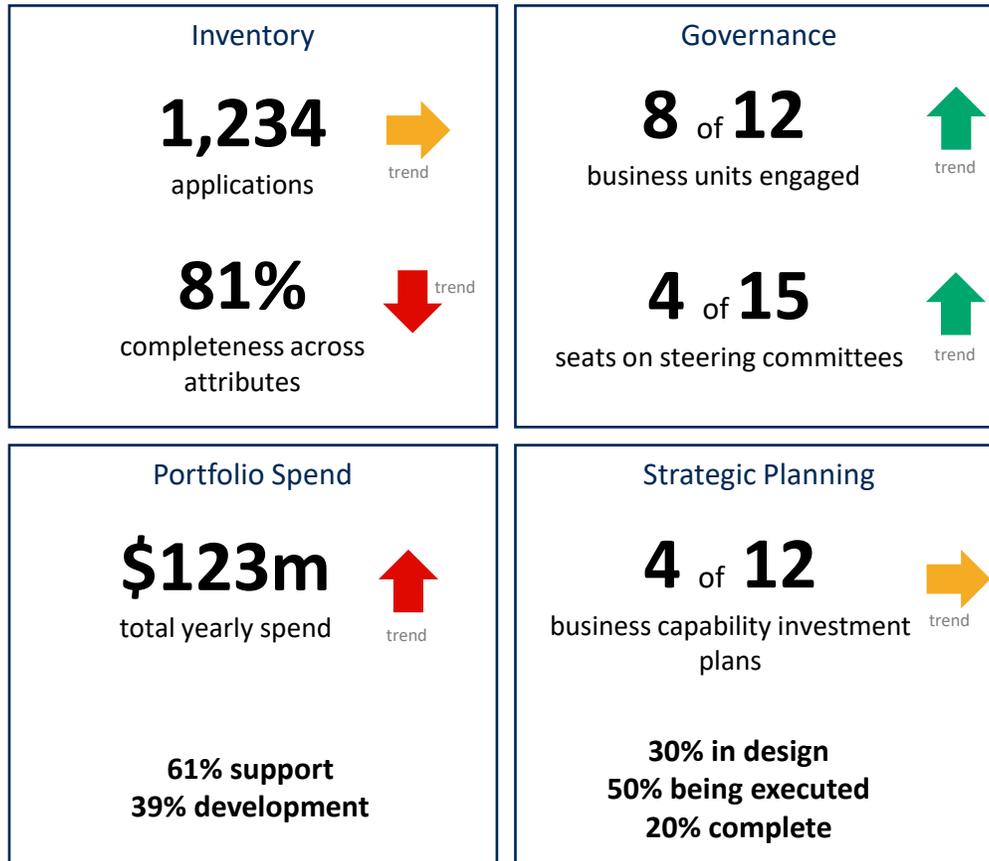
Initiative: 3.1.2 – Improve Application Portfolio Governance

Overview		Complexity	Medium	Cost	\$250K – 500k
<ul style="list-style-type: none"> 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. 		Owner		Core Duration	
		Enterprise Architecture Lead		6 months	
		Execution Team		Key Dependencies	
		<ul style="list-style-type: none"> Senior Architecture Lead Program Manager 		<ul style="list-style-type: none"> N/A 	
Key Activities		Description			
Establish Application Portfolio Governance and Sponsorship	<ul style="list-style-type: none"> Obtain buy-in and senior leadership support across departments to promote enterprise-wide adoption Establish application portfolio governance team 				
Establish Application Investment and Operational Processes	<ul style="list-style-type: none"> Assess current processes for improvement opportunities Design and socialize the application investment and operational processes with key stakeholders providing feedback and input Modify investment process(es) to include application portfolio governance team participation in new application and modernization requests (refer to business capabilities & overarching technology strategy) Leverage data through continuously improving operational process(es) that inform the investment process 				
Pilot Application Investment Process(es) With Any Modifications	<ul style="list-style-type: none"> Create a pilot process to take a small amount of application investment requests through the modified process(es) 				
Execute and Monitor	<ul style="list-style-type: none"> Incrementally deploy and scale the process(es) across the City Continuously monitor performance for improvement opportunities 				
Execution Guidance and Assumptions					
<ul style="list-style-type: none"> 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					
<ul style="list-style-type: none"> Investment and Operational Processes Governance Team Role Description Decision Rights Performance Scorecard to Advise and Keep Momentum 					

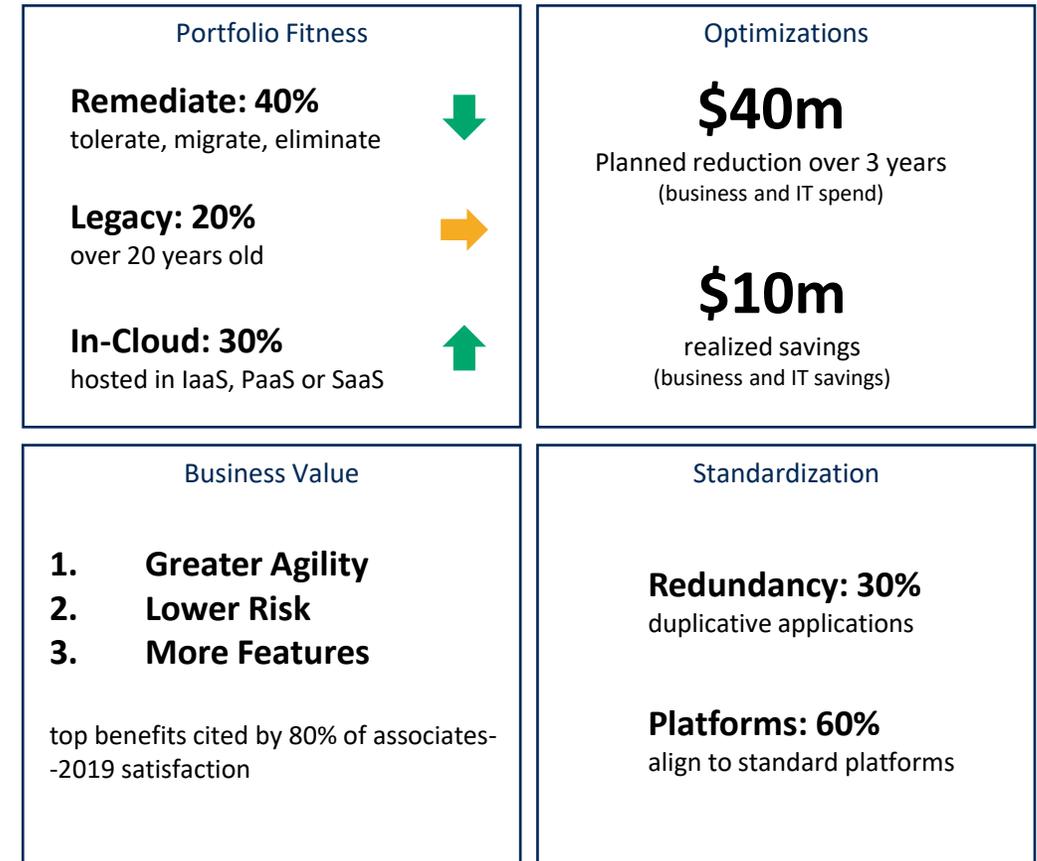
Examples of a Portfolio Dashboard on a Page

- 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?"



Business Measures "Are Benefits of Change Being Realized?"





Goal 3.1: Modernize Application Portfolio and Supporting Technologies

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Goal 3: Transform City Infrastructure

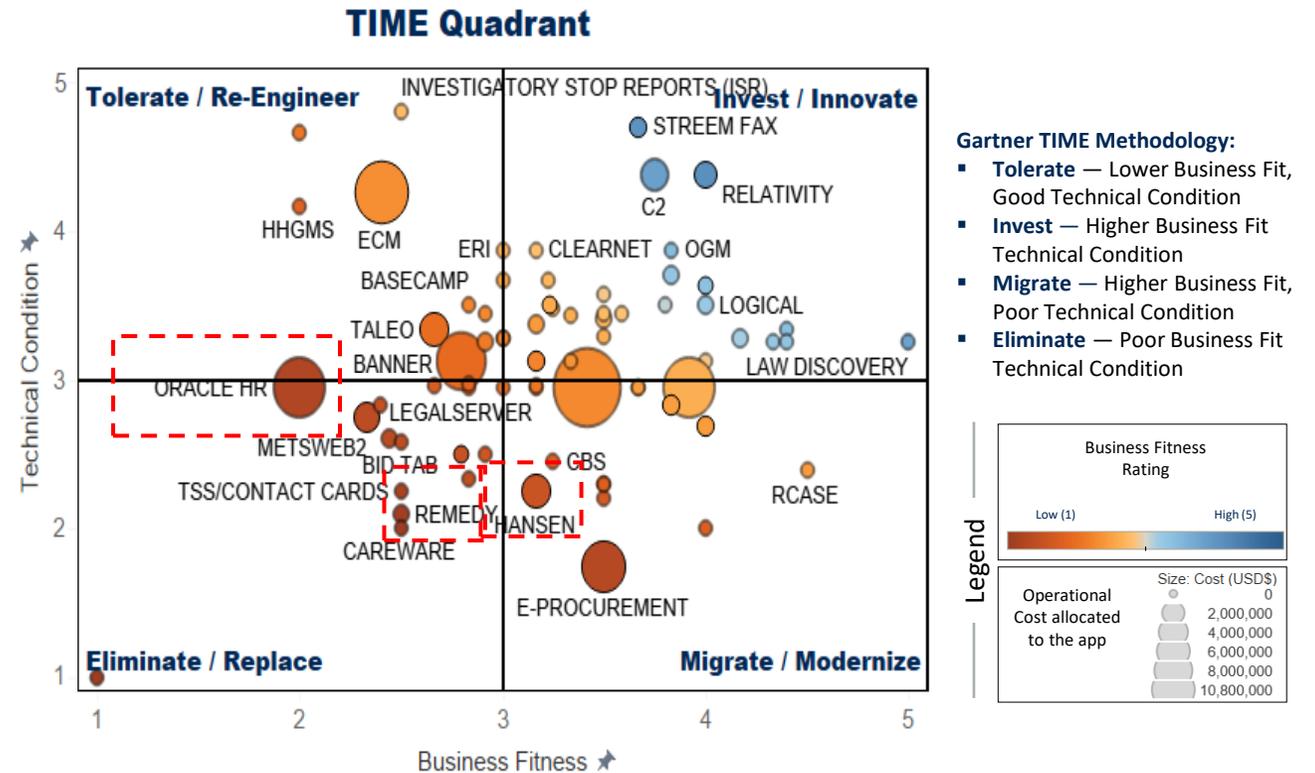
Initiative: 3.1.3 – Right Size Application Portfolio

Overview		Complexity	High	Cost	\$250K-\$500K
<ul style="list-style-type: none"> 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. 		Owner	CTO		
Key Activities		Execution Team	<ul style="list-style-type: none"> Domain architect & EA Domain-specific business stakeholders 		
Description		Core Duration	18 Months		
		Key Dependencies	<ul style="list-style-type: none"> N/A 		
		Execution Guidance and Assumptions			
1. Define Business Capabilities <ul style="list-style-type: none"> 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 		<ul style="list-style-type: none"> 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 			
2. Develop Target State <ul style="list-style-type: none"> Identify application architecture options Select target application architecture Establish vendor shortlists (as necessary) 					
2. Develop Roadmap <ul style="list-style-type: none"> 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) <ul style="list-style-type: none"> Issue RFX and evaluate demos and/or orals (as necessary) 					
2. Execute / implement <ul style="list-style-type: none"> Implement and/or take the necessary steps to rationalize the application portfolio in each specific area (linkage to initiative #2) 		Key Artifacts Delivered			
		<ul style="list-style-type: none"> More granular capabilities with differentiation / uniqueness identified Target state application architecture Vendor shortlists as necessary 			

Goal 3: Transform City Infrastructure

Initiative: 3.1.3 – Right Size Application Portfolio

- 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.





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- **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: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

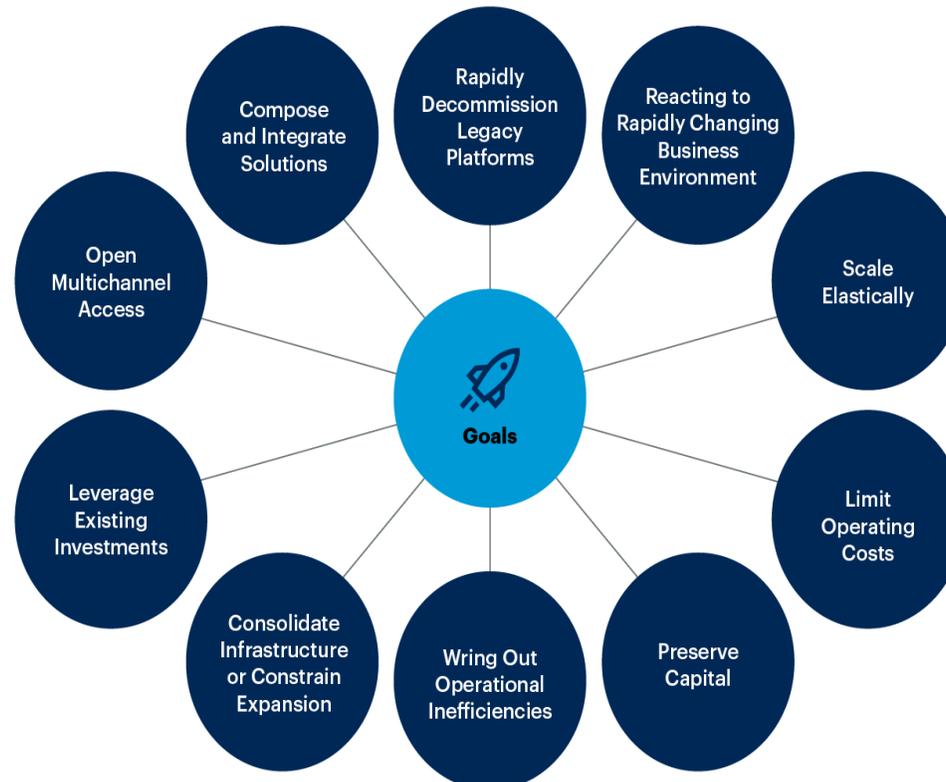
Overview		Complexity	High	Cost	\$1M+
<ul style="list-style-type: none"> Over 40% of the City’s applications currently hosted on-premise are suitable for cloud migration. There is an opportunity to leverage cloud capabilities to provide more elasticity in supporting the City’s needs as they change over 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. 		Owner Chief Technology Officer		Core Duration 4 months	
		Execution Team <ul style="list-style-type: none"> Apps, infrastructure, and business collaboration Cloud Center of Excellence (CoE) 		Key Dependencies <ul style="list-style-type: none"> Steps within this initiative should be completed in sequential order 	
Key Activities	Description	Execution Guidance and Assumptions			
Assess Current Operating Model	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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) 			
Create a Citywide Cloud Migration Strategy	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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 	Key Artifacts Delivered <ul style="list-style-type: none"> Cloud operating model Cloud architecture practices Cloud governance Cloud financial model 			

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.

Example of Goals for a Cloud Migration Strategy

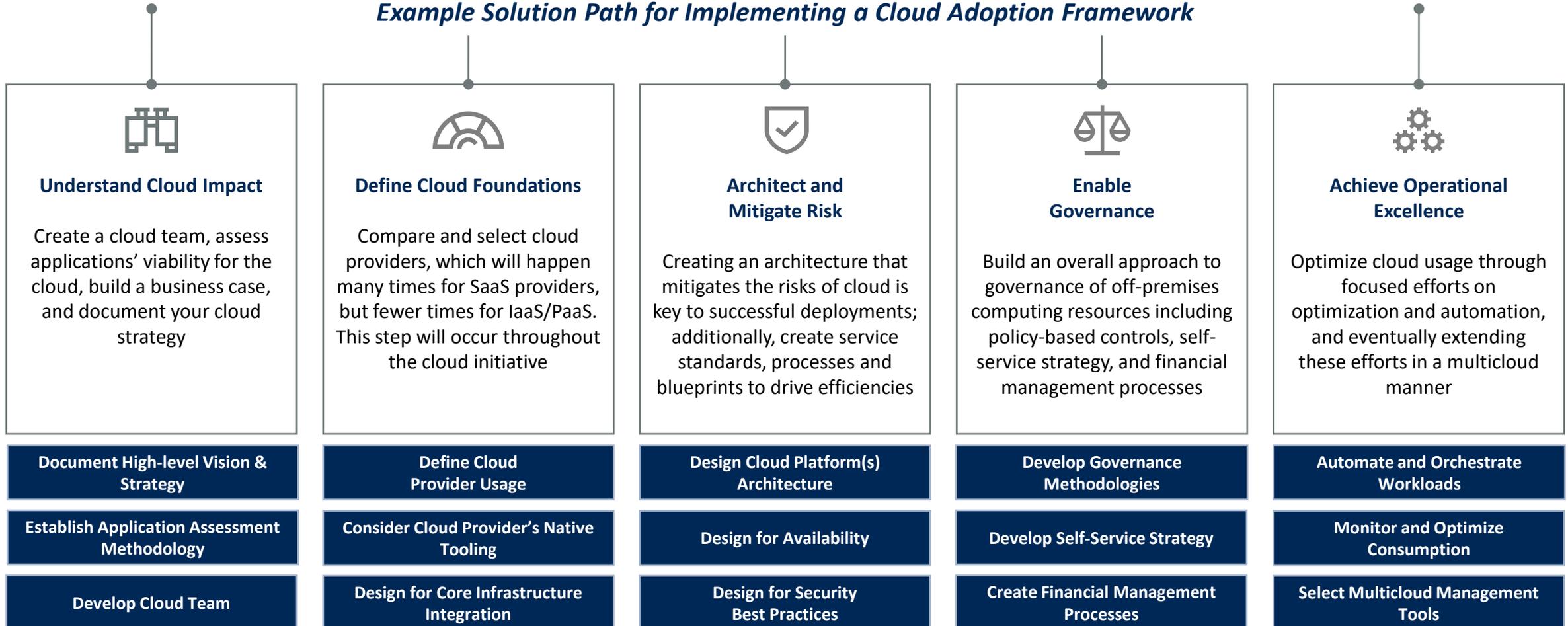


Source: Gartner research

Goal 3: Transform City Infrastructure

Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

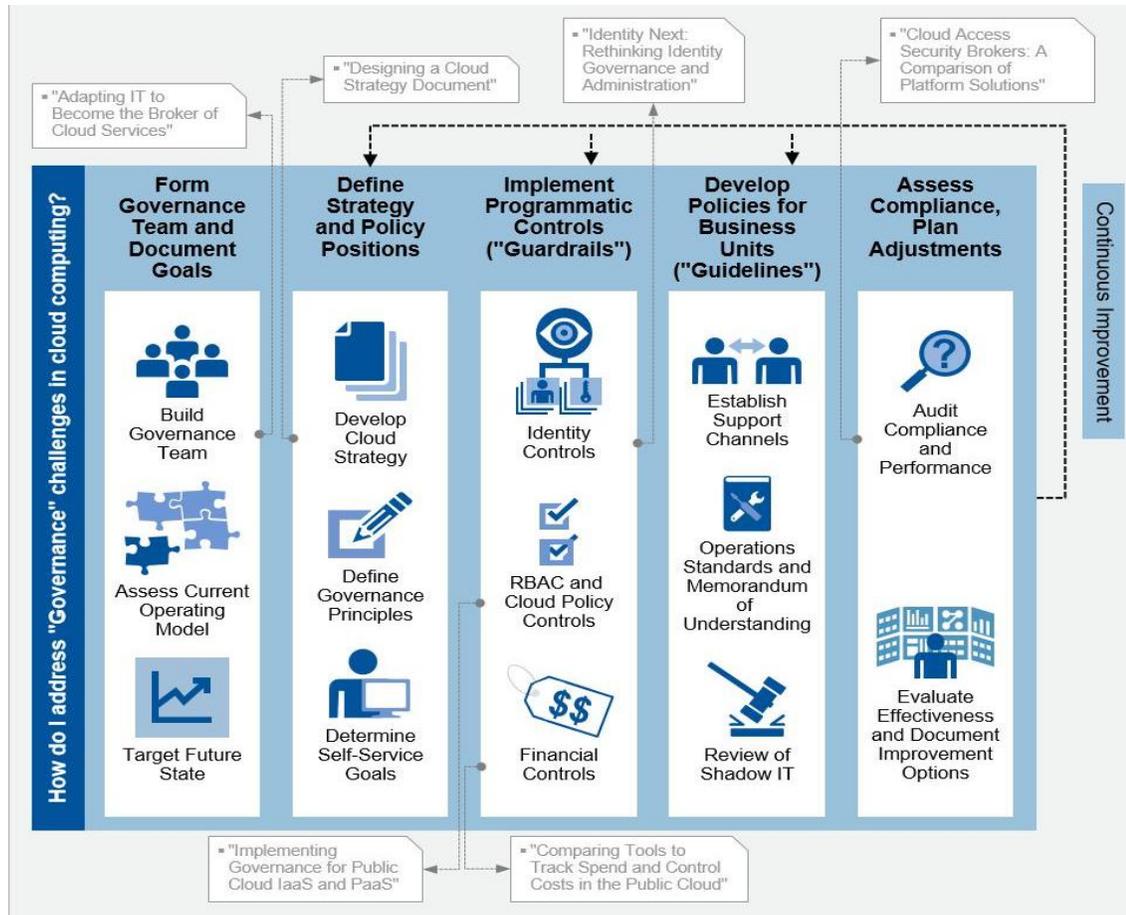
Example Solution Path for Implementing a Cloud Adoption Framework



Goal 3: Transform City Infrastructure

Initiative: 3.1.4 – Define Cloud Migration Approach & Procure Vendor Support

Example Process for Enabling Governance (Cloud)



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

Source: Gartner research

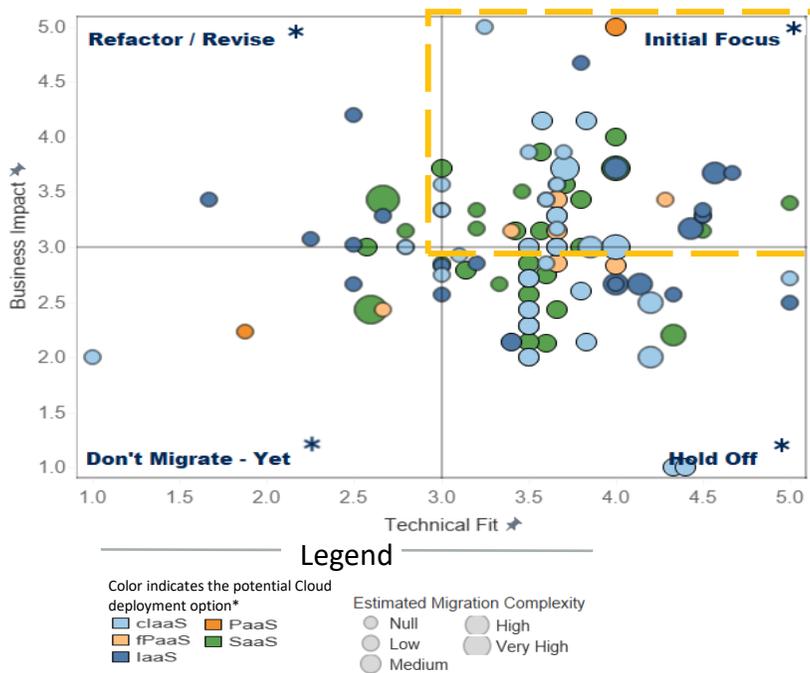
Establishing governance provides guardrails and guidelines in the decision-making process while also preventing bad outcomes and documenting risk boundaries.

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



Application Name	Business Unit	Cloud Deployment	Complexity	TIME Quadrant
CCM	CDOT	IaaS		Migrate
E-INVOICING / CDOT PROJECTS	CDOT	claaS		Migrate
ELECTRONIC LOBBYIST FILING (ELF)	Board of Ethics	IaaS		Migrate
EMS ENTERPRISE	DCASE	IaaS		Migrate
METERSAVE	DWM	claaS	High	Migrate
OCC OVERTIME TRACKING APPLICATION	CDA	SaaS	Low	Migrate
OVERTIME MANAGEMENT SYSTEM	AIS_non_BoIT	claaS	Low	Migrate
PASSAGEPOINT	DWM	SaaS	Low	Migrate
PAYMENT VOUCHER	AIS_non_BoIT	claaS	Low	Migrate
PIR	AIS_non_BoIT	claaS	Low	Migrate
STD PARKING TAX REVENUE	CDA	claaS	Low	Migrate
TAX GRANT	Office of the Mayor	claaS		Migrate
VOUCHER SYSTEM	CDOT	On-Premise	Low	Migrate

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

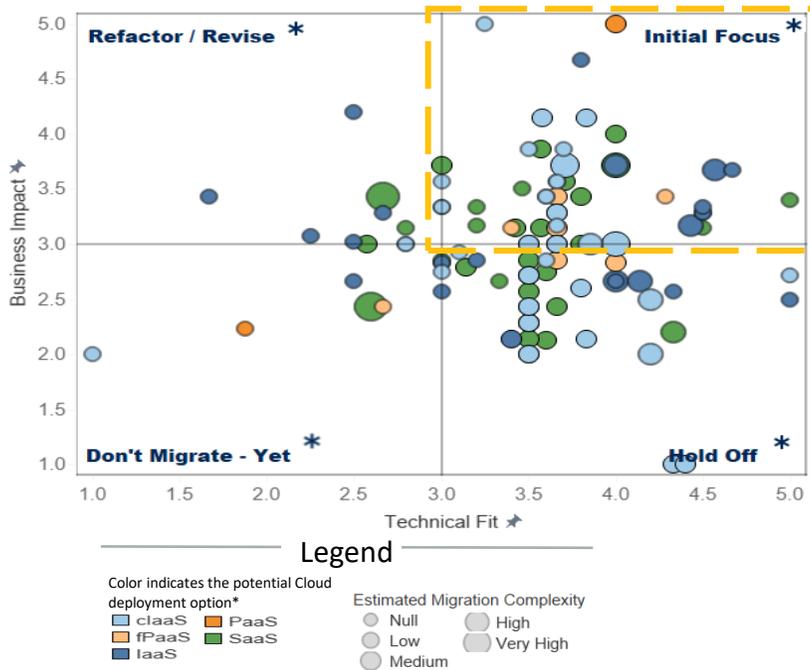
- claaS – container infrastructure as a service, for example Kubernetes
- fPaaS – function Platform as a service, for example Google Cloud functions
- IaaS – Infrastructure as a service, for example Amazon Web Services
- PaaS – Platform as a service, for example Pega
- SaaS – Software as a service, for example Salesforce

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 – Tolerate



Application Name	Business Unit	Cloud Deployment	Complexity	TIME Quadrant
EVERBRIDGE MASS NOTIFICATION	CDA	fPaaS	Low	Tolerate
TRAFFIC COUNT	CDOT	PaaS	Low	Tolerate
AUTO CR	OIG	IaaS		Tolerate
COURT NOTIFICATION	OIG	IaaS		Tolerate
DTS DASHBOARD	OIG	IaaS		Tolerate
FIREARM CERTIFICATION	OIG	IaaS		Tolerate
OFFICER ACTIVITY REPORTING	OIG	IaaS	Medium	Tolerate
ARCGIS	AIS BoIT, CDOT	SaaS		Tolerate
FMS	CDA	SaaS	Low	Tolerate
INVESTIGATORY STOP REPORTS (ISR)	OIG	SaaS		Tolerate
IPS 11	CDOT, DOB, BACP	SaaS	High	Tolerate
TRAFFIC TRACKER	CDOT	SaaS	Low	Tolerate

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

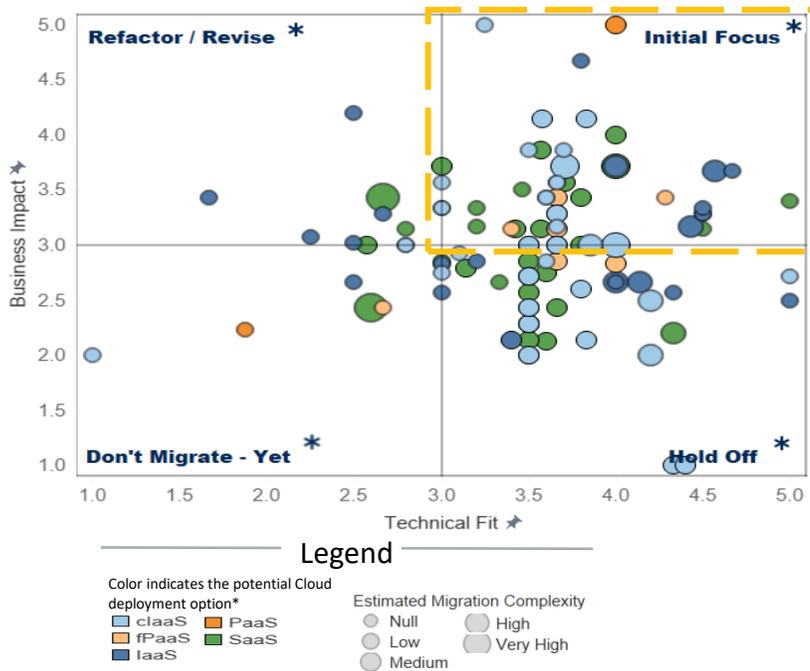
- claaS – container infrastructure as a service, for example Kubernetes
- fPaaS – function Platform as a service, for example Google Cloud functions
- IaaS – Infrastructure as a service, for example Amazon Web Services
- PaaS – Platform as a service, for example Pega
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Goal 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.
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Public Cloud deployment: Initial Focus – Invest (1 of 2)



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

- claaS – container infrastructure as a service, for example Kubernetes
- fPaaS – function Platform as a service, for example Google Cloud functions
- IaaS – Infrastructure as a service, for example Amazon Web Services
- PaaS – Platform as a service, for example Pega
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Application Name	Business Unit	Cloud Deployment	Complexity	TIME Quadrant
811	CDOT	claaS		Invest
ADT	CDOT	laaS		Invest
ATMS	CDOT	On-Premise	Medium	Invest
BMS	AIS_non_BoIT	claaS		Invest
CDOT CONSTRUCTION SITE	CDOT	fPaaS		Invest
CDOT REIMBURSEMENTS	CDOT	SaaS		Invest
CHAMELEON	ACC	claaS		Invest
CHAMP	DWM	claaS	High	Invest
CLEAR	OIG	laaS		Invest
COLUMN CASE MGMT	COPA, OIG	SaaS	Low	Invest
DATA TRACKER WEB CLIENT	DPS	claaS	Low	Invest
DIGGER	CDOT, 311 City Services	SaaS	Low	Invest
DMS	CDOT	SaaS	Low	Invest
DSS SNOW SURVEY	DSS	laaS		Invest
DSS TRANSFER REQUEST	DSS	laaS		Invest
EDS	DPS	fPaaS		Invest
EDUCATION AND TRAINING DIVISION	OIG	laaS		Invest
EFI PRINTSMITH	AIS_non_BoIT	SaaS	Low	Invest
ELECTRONIC FINANCIAL INTEREST STATEMENTS (EFIS)	Board of Ethics	laaS		Invest
ETHICS TRAINING	Board of Ethics, AIS BoIT, CDA, CDOT	claaS		Invest

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 - Invest (2 of 2)



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- claaS – container infrastructure as a service, for example Kubernetes
- fPaaS – function Platform as a service, for example Google Cloud functions
- IaaS – Infrastructure as a service, for example Amazon Web Services
- PaaS – Platform as a service, for example Pega
- SaaS – Software as a service, for example Salesforce

Application Name	Business Unit	Cloud Deployment	Complexity	TIME Quadrant
ETRAKKER	AIS_non_BoIT	claaS	Low	Invest
FARMERS MARKET	DCASE, AIS BoIT	IaaS		Invest
FREIGHT & TROLLY	CDOT	claaS		Invest
GBMS	AIS_non_BoIT	claaS		Invest
HOUSE SHARE REGISTRATION SYSTEM	BACP	fPaaS		Invest
HOUSING DEVELOPMENT PRO	CDPH	SaaS		Invest
IDENTIPASS/PREMISSYS	DWM	SaaS	Low	Invest
IPI	AIS BoIT	IaaS	Medium	Invest
LOGICAL	DOL	SaaS		Invest
OGM	OBM	claaS		Invest
PARS	DFSS	fPaaS	Low	Invest
RELATIVITY	DOL	IaaS		Invest
SCADA	CDOT	claaS		Invest
STREEM FAX	DWM	SaaS	Low	Invest
USERFUL	CDA	fPaaS	Low	Invest
VENDOR REQUEST FORM F5-A, B, C	DPS	claaS		Invest
INTERNAL WEBAPPS	DPS	claaS		Invest
WATER STREAM FAXING	DWM	On-Premise	Low	Invest
WIKI APPLICATION- PERFORMANCE MEASURES	DPS	claaS		Invest
ETRAKKER	AIS_non_BoIT	claaS	Low	Invest
FARMERS MARKET	DCASE, AIS BoIT	IaaS		Invest

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	DCASE	PaaS		Eliminate
CHICAGO BUSINESS DIRECT	BACP	IaaS		Eliminate
LEARNING MANAGEMENT SYSTEM	DHR	SaaS		Eliminate

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

- claaS – container infrastructure as a service, for example Kubernetes
- fPaaS – function Platform as a service, for example Google Cloud functions
- IaaS – Infrastructure as a service, for example Amazon Web Services
- PaaS – Platform as a service, for example Pega
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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		Complexity	Medium	Cost	\$1M+
<ul style="list-style-type: none"> 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. 		Owner CTO		Core Duration 4 Months + ongoing execution	
		Execution Team <ul style="list-style-type: none"> AIS Enterprise Architect Departments 		Key Dependencies <ul style="list-style-type: none"> N/A 	
Key Activities	Description	Execution Guidance and Assumptions			
Review and Categorize Application Technical Condition	<ul style="list-style-type: none"> Identify scope of applications with poor technical condition (start by referring to Gartner’s application portfolio assessment for additional details) 	<ul style="list-style-type: none"> Technical condition remediation decisions should be made in close conjunction with any application retirement plans as they are solidified 			
Develop Standard for Technical Refreshes	<ul style="list-style-type: none"> Identify key process stakeholders and clearly define responsibilities for various stakeholders involved 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) Increase transparency by reporting costs & risks of technical condition in applications. Create a technical refresh template (including criteria for documenting impacts from a system user and compliance perspective, criteria for documenting technology dependencies, potential solutions) 	<ul style="list-style-type: none"> Dated versions of Oracle, MySQL, Microsoft Access and SQLServer 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) 			
Develop and Execute Technology Refresh Roadmap	<ul style="list-style-type: none"> Document short-term and long-term priorities for application modernization; Identify new opportunities for modernization as application portfolio governance and related data takes hold Refine and update technical refresh template to address findings from Activity 2 	Key Artifacts Delivered <ul style="list-style-type: none"> Tech Refresh Model Tech Refresh Roadmap factoring in key vendor roadmaps 			

Goal 3: Transform City Infrastructure

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

- 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				
	Technology	Architecture	Functionality	Unavailable
Rehost	39			
Revise	1	39		
Rearchitect		8		
Rebuild			17	
Replace		11	43	
Continuous Modernization	21	27	58	81

of applications based on the data provided by City departments during the Current State Assessment



Goal 3: Transform City Infrastructure

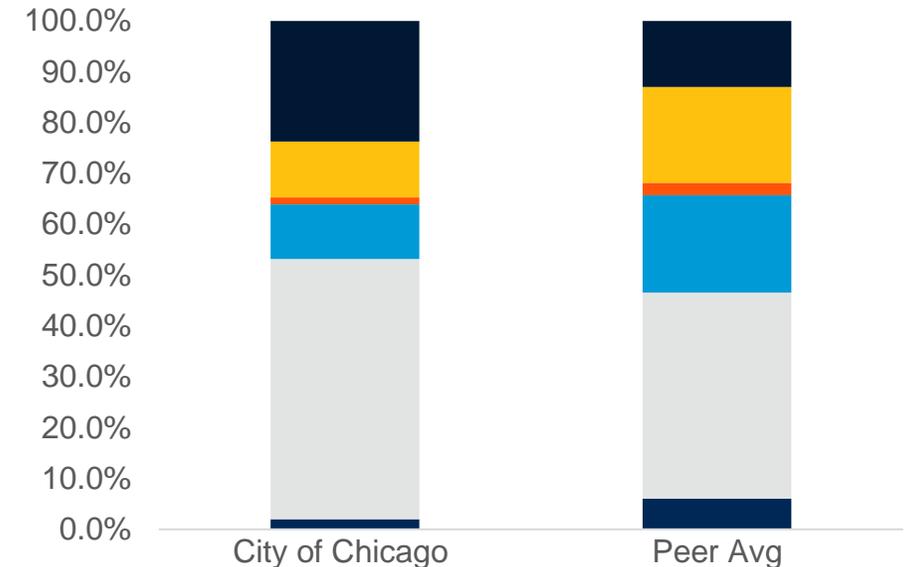
- 3.1 – Modernize application portfolio and supporting technologies
- 3.2 – Strengthen Technology Infrastructure, Integration & Security

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.

- 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.

Distribution of IT Spending by Functional Area



■ Data Centers	23.7%	13.0%
■ End-User Computing	11.0%	18.9%
■ IT Service Desk	1.4%	2.4%
■ Data & Voice Network	10.7%	19.2%
■ Application Dev & Spt	51.2%	40.6%
■ IT Mgmt, Fin & Admin	2.0%	6.0%



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	
<ul style="list-style-type: none"> 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	Description
Establish baseline & target state IT infrastructure requirements	<ul style="list-style-type: none"> Capture current state infrastructure environment and proposed future infrastructure architecture Review agility, reliability, efficiency, security, resiliency, and scalability requirements
Define Cloud & Data Center strategic hosting alternatives	<ul style="list-style-type: none"> Develop cloud and data center target state alternatives based on identified requirements Develop evaluation criteria for an infrastructure-oriented cloud and data center strategy based on: IT strategic alignment, risk mitigation, operational excellence, and financials/cost. Develop an objective evaluation model to score the proposed target state alternatives
Develop reference architecture	<ul style="list-style-type: none"> Formulate a reference architecture for a hybrid multi-cloud control plane. The cloud control plane should be designed to identify the tooling capabilities to effectively and efficiently manage a hybrid multi-cloud hosting environment
Evaluate and select “Best Fit” alternative	<ul style="list-style-type: none"> Identify organizational and skill gaps with hybrid cloud and develop mitigation plan Develop a framework and governance model for standing up a cloud center of excellence
Execute	<ul style="list-style-type: none"> Socialize and educate executive sponsors for project and budget approval Procure hybrid cloud services as needed when migrating to the cloud in alignment with the hybrid multi-cloud strategy.

Complexity	Medium	Cost	\$250K-\$500K
Owner	Core Duration		
CTO	~3 Months		
Execution Team	Key Dependencies		
<ul style="list-style-type: none"> IT Infrastructure leaders for network, storage & facilities, and Enterprise Architecture 	<ul style="list-style-type: none"> Goal 3.1.3: Migrate to Cloud timeframe 		
Execution Guidance and Assumptions			
<ul style="list-style-type: none"> ~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 Artifacts Delivered			
<ul style="list-style-type: none"> 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 			



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.

Exhibit 4.1 – Examples of City of Chicago Communications Management Capabilities

PUTTING PEOPLE AT THE CENTER

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 4.12 – Summary of Community Engagement Methods to Support 311 Outreach

Community Engagement Matrix											
Types of Engagement	Online Communities	Stand Up Banner with Display Table	Printed Materials	Blog	User Testing	Presentation	CAG	Community mapping	Post Cards from the Future	Easel Responses	Promotional Items
Awareness	★	★	★	★	★			★			★
Resident Engagement	★	★	★	★		★	★		★	★	★
Community Meeting	★	★	★	★		★				★	★

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:

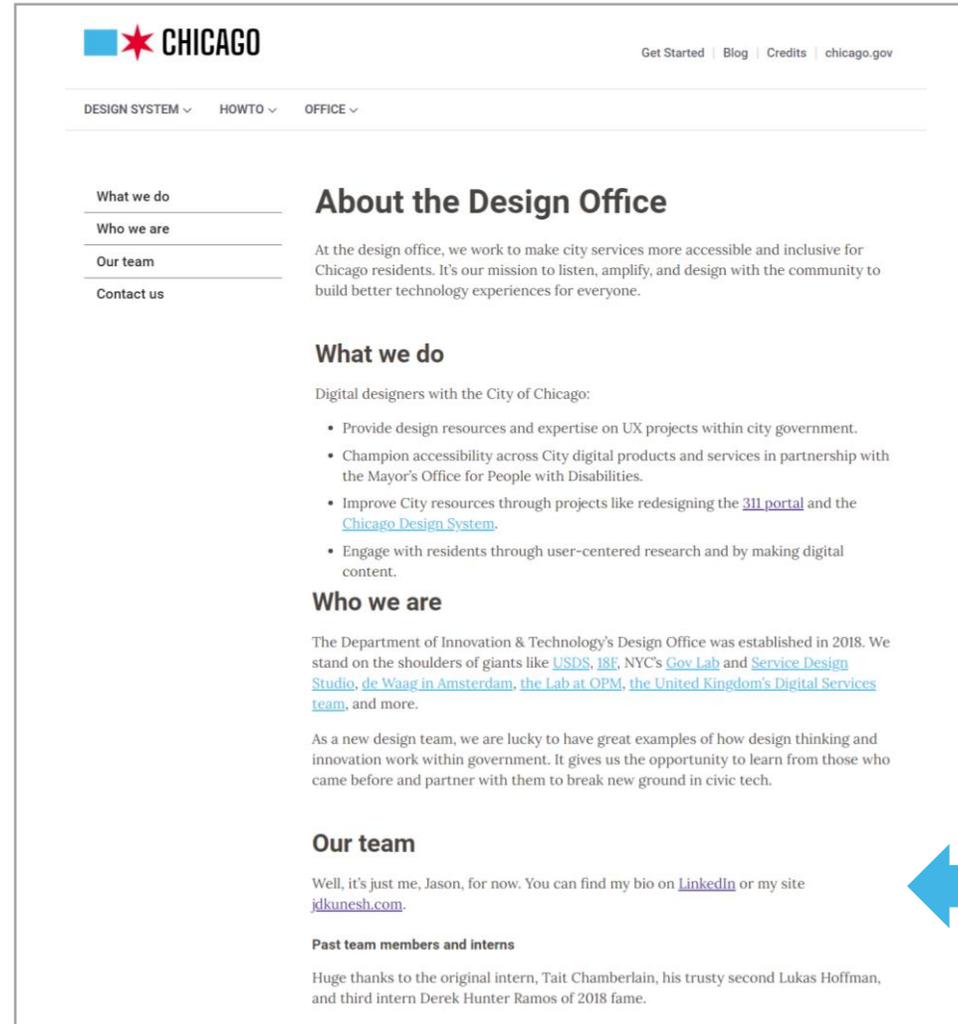
- Enabled the rapid launch of the microsites necessary to help keep Chicagoans safe and informed throughout the COVID-19 pandemic.
- Provided technical assistance and visual design support for the [Sustain Chicago](#) initiative.
- Engaged with COPA to provide resources to help them build their desired 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.

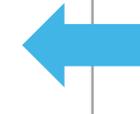
The focus of this section of the IT Strategic Plan is to identify the steps for building upon the City’s previous and current efforts to establish the necessary capacity and capabilities for digital public services development.

Exhibit 4.2 – Overview of the City’s Digital Services Team / Approach



The screenshot shows a webpage for the City of Chicago's Design Office. The header includes the Chicago logo and navigation links: 'Get Started | Blog | Credits | chicago.gov'. Below the header are three dropdown menus: 'DESIGN SYSTEM', 'HOWTO', and 'OFFICE'. The main content area is titled 'About the Design Office' and includes sections for 'What we do', 'Who we are', 'Our team', and 'Contact us'. The 'What we do' section lists several key initiatives, including providing design resources, championing accessibility, and improving city resources. The 'Who we are' section mentions the office's establishment in 2018 and its inspiration from various international design teams. The 'Our team' section includes a bio for Jason, the current team lead, and a list of past team members and interns.

Recent departure from the City to be backfilled.



Goal 4: Put People at the Center

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

Overview
<p>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.</p> <p>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.</p>

Key Activities	Description
1. Identify Digital Services Leadership and Team	<ul style="list-style-type: none"> 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 (<i>See 4.1 Stand Up Digital Services Team and Playbook (2 of 5 and 3 of 5)</i>)
2. Develop Digital Services Playbook	<ul style="list-style-type: none"> Develop the Digital Services Playbook based on digital best practices while incorporating standards, tools, and activities aligned with the City's overall modernization effort (<i>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</i>)
3. Determine Prioritization / Oversight	<ul style="list-style-type: none"> 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 (<i>See 4.1 Stand Up Digital Services Team and Playbook (5 of 5)</i>)

Timeframe	0 – 6 months, & 12 – 18 months	One time Cost	No Cost – \$150k (could use non-profit support)
Complexity	Medium	Ongoing Cost	NA
Owner		Core Duration	
AIS Executive		4 Months	

Execution Team	Key Dependencies
<ul style="list-style-type: none"> AIS Technology Strategy Group Human Resources 	<ul style="list-style-type: none"> 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

Execution Guidance and Assumptions
<ul style="list-style-type: none"> Work with HR to plan staffing and training approaches for building up the Digital Services Team

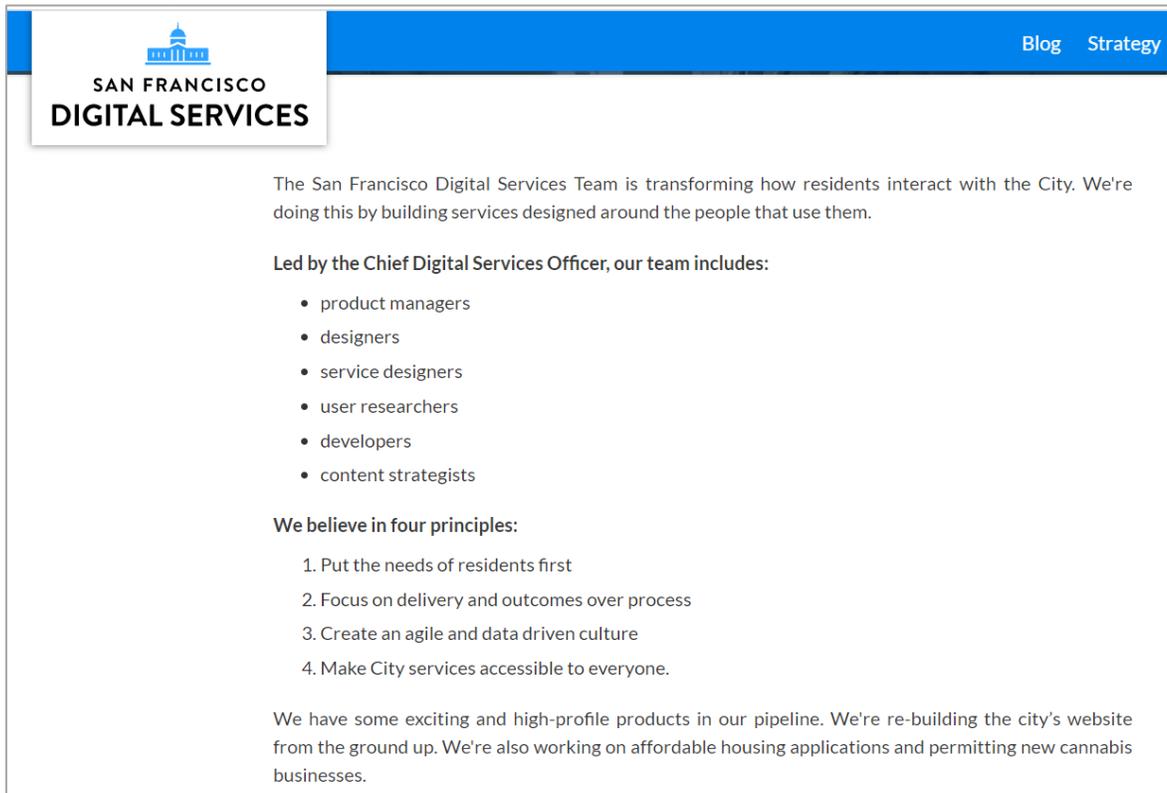
Key Artifacts Delivered
<ul style="list-style-type: none"> Digital Services Playbook

Goal 4: Put People at the Center

Initiative: 4.1, 4.2 – Build A Digital Services Team and Playbook (2 of 5)

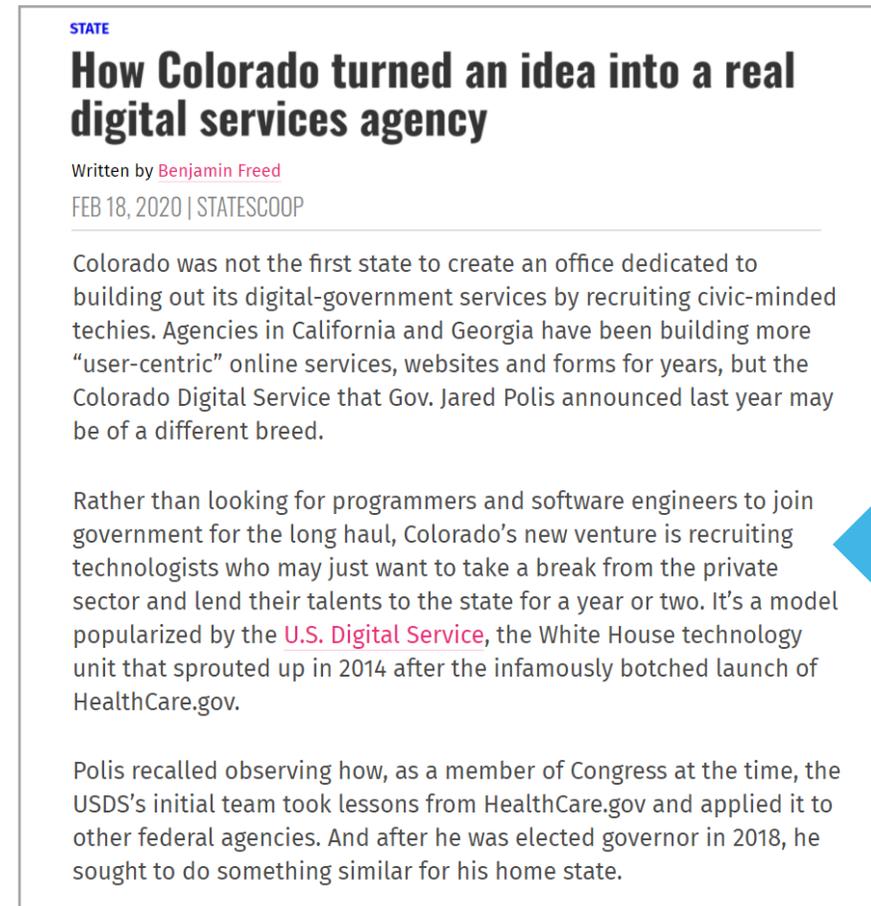
Examples - Local Government Digital Services Teams

City & County of San Francisco – In-House Team



The screenshot shows the San Francisco Digital Services website. At the top left is the San Francisco logo and the text "SAN FRANCISCO DIGITAL SERVICES". At the top right are links for "Blog" and "Strategy". The main content area includes a paragraph: "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." Below this is a section "Led by the Chief Digital Services Officer, our team includes:" followed by a bulleted list: product managers, designers, service designers, user researchers, developers, and content strategists. Next is "We believe in four principles:" followed by a numbered list: 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. At the bottom, it says: "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



The screenshot shows an article titled "How Colorado turned an idea into a real digital services agency" by Benjamin Freed, dated Feb 18, 2020. The article discusses Colorado's digital services agency, noting it was not the first state to do so. It mentions that 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. A blue arrow points to the text: "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." The article concludes by stating that Polis recalled observing how, as a member of Congress at the time, the USDS'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.

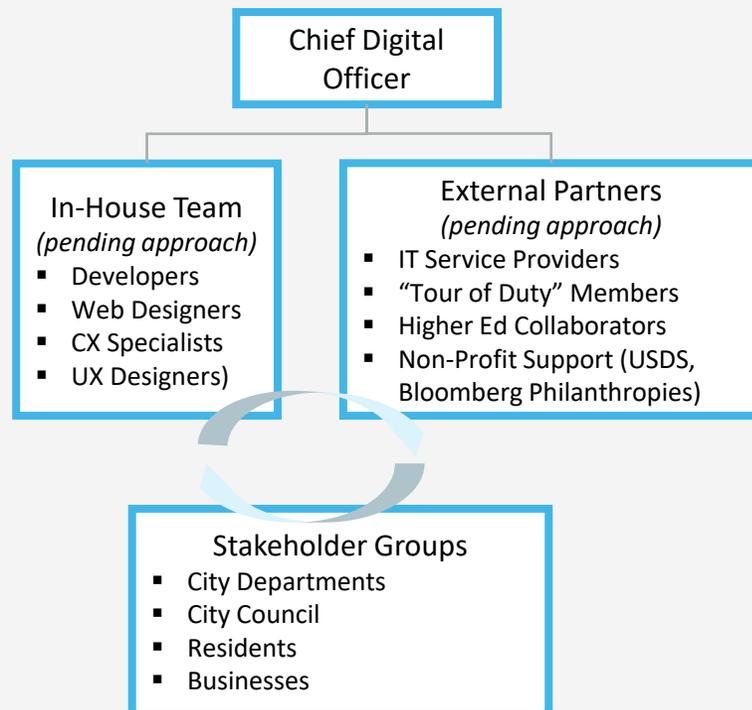
Goal 4: Put People at the Center

Initiative: 4.1, 4.2 – Build A Digital Services Team and Playbook (3 of 5)

Digital Services Team Structure and Playbook Components

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



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)

B.C. Service Design Model

UXBC@gov.bc.ca | gov.bc.ca/servicesdesign



ALIGNMENT

Confirm executive commitment, funding, and accountability. Ensure project understanding by executive team, and communicate project intent and needs to leadership team to facilitate further activity. Set baseline scope, expectations, resources, and constraints.

DISCOVERY

Understand the current state of service delivery based on real world research. Generate insights, understand needs, & establish initial baseline service measures.

OPPORTUNITY

Explore opportunities for future services and improvements. Establish strategic direction for service futures and opportunities for immediate improvement. Identify new capability.

PROTOTYPE & TEST

Make ideas tangible so they can be understood, tested, refined, and improved. Manage risk by creating and testing multiple solutions with real clients to increase value from opportunities. Prototype across touchpoints, time, and levels of realism. Test concepts.

ROADMAP

Communicate a clear path to realize opportunities and follow vision. Establish shared understanding, priorities, and plans through communication and visualization.

IMPLEMENT

Set client up for success through a continuous improvement framework that creates an improved experience for citizens and stakeholders. Prototypes and iterations come to life and become useful services for people.

PROJECT PREPARATION & LOGISTICS

- What makes a good service design project?
 - Readiness for change
 - Capability
 - Commitment and capacity
 - Creating shared value
- When to expect during and after the project.
 - Examples of deliverables

FUNDING AND APPROVALS

- Create project governance, calculation, and approvals
- Budget allocated and approved
- Business areas has direct involvement in project decision making.

SETTING UP THE TEAM

- Executive sponsor & Internal team selection. DSS advisors selected. Partner vendor selected if needed.
- Working Group selected.
- Roles, responsibilities, communications & expectations
- Business area representation
- Committed, Capable, Adaptable
- Connected with Org. Stakeholders
- Available to Travel

The Business Foundation Workshop

- Service Selection (Business Goals & Objectives, Current Known Pain Points, Transformation Plan, Business Case)
- Stakeholder Mapping
- Business Model Canvas

MANAGING CHANGE

- Relationship with other programs
- Managing Risk in a service design project
- Service Design as Change
- Using this approach may generate findings that are broader than your initial expectation. May impact across entire service architecture (e.g. client interface, policy, technology, legislation, IT, facilities).
- Setting expectations for change management

PROJECT FUNDAMENTALS

- Initial Project Workshop
- Privacy Impact Assessment
- Need to go broad about what information may be collected for a prototype based on information collected today. Optional, but available.
- The Opportunity Log
- Communications & Change Management Plan
- Project Charter/Partnership Agreement
- Recruiting Logistics
- Recruiting Logistics

DELIVERABLES

- Partnership Agreement
- Business Model Canvas

OUTCOMES & RESULTS

- Clear understanding and expectations by project sponsors, other leadership, and program area and partner teams.
- Commitment to the change management investment required to successfully create the most value from a service design initiative.

PRINCIPLES

- Service Design is Change Management
- Clear Expectations Are Key
- Show and Tell Ways of Working
- Recruiting, Recruiting, Recruiting.
- Prime the Organization

INTERNAL DESK RESEARCH

- Environmental Scan
- Channel/Volume Check
- Service Interaction Types
- Research Plan
- Research Plan for Internal discovery and field research
- Research guidelines

RESEARCH APPROACH

- Initial Project Workshop
- Privacy Impact Assessment
- Need to go broad about what information may be collected for a prototype based on information collected today. Optional, but available.
- The Opportunity Log
- Communications & Change Management Plan
- Project Charter/Partnership Agreement
- Recruiting Logistics
- Recruiting Logistics

INTERNAL INTERVIEWS

- Internal staff interviews
- NOTE: Frontline interviews may be combined with field research and observation.

FIELD RESEARCH

RESEARCH PREPARATION

- Logistics (travel & recruiting)
- Daily debriefing

RESEARCH

- Site Visits
- Onsite observation and interview with clients and frontline staff.
- Interviews
- Scheduled interviews with clients
- Co-Design Workshop(s)
- Workshop with clients or staff to understand current service experience (and explore possible opportunities).
- Diary Study (R2)
- Clients who use a service over time keep a diary of service interactions and other relevant experiences. Team collects diary recording and conducts a final interview to explore significance of diary events and observations.

METRICS RESEARCH

- Behavioural Analytics & IPIs
- Current Analytics & metrics
- Key Performance Indicators
- New Analytics & Metrics
- Measures of time, money, behaviours, other specific quantitative data.
- Surveys
- OMT/Sen/QualV
- RATER (preferred)
- Net Promoter (avoid unless in competitive service domain)
- Gallup CE 11

ANALYSIS

- Research notes and data review
- Computerized Thermo Analysis
- Statistical Analysis (quantitative data)
- Research Analysis Workshop
- Affinity Analysis
- Task Analysis (optional)
- Personas & Scenarios

JOURNEY MAPPING WORKSHOP

- Journey Mapping based on research findings
- May combine with future map opportunities based on time

METRICS DESIGN WORKSHOP

- Generating relevant metrics that reflect the client journey
- Establish Initial Service Evaluation Model

REPORTING

- Research Findings Report
- Journey Mapping
- Service Evaluation Model
- Initial Service Baseline

DELIVERABLES

- Personas and Scenarios
- Design Principles
- Research Findings Report
- Journey Maps
- Service Evaluation Model
- Opportunity Log

OUTCOMES & RESULTS

- Understanding of current services from both inside-out and outside-in perspective.
- Outside-in perspective is a critical success factor for service transformation.
- Model meaningful metrics: Understanding client and stakeholder needs helps understand which measures matter. How will we know we're successful?

PRINCIPLES

- Recruiting, Recruiting, Recruiting.
- Explore the Whole Experience
- Get Out in The Field
- Design With us, Design For us
- Map Defining Moments
- Measure What Matters

OPPORTUNITY SELECTION & PRIORITY

- Service feature inventory
- Weighted Feature-Value Matrix or other prioritization tool
- Some Opportunities may need Prototypes to validate.

INITIAL BLOOMPRINT WORKSHOP

- Extend journey map with organizational layers including:
 - Channels
 - Org Capabilities
 - Business Process
 - Physical Environment
 - Staffing & Org Structure
 - Policy & Strategy
 - Technical Systems

BLOOMPRINT DESIGN AND DEVELOPMENT

- Add bloomprint details
- Channels
- Staffing & Org Structure for Prototyping touch points

FUTURE BUSINESS MODEL WORKSHOP

- What does the business model canvas look like for new service offerings?

INDIVIDUAL, TEAM, AND LARGER GROUP WORKSHOPS

PREPARATION

- Workshop logistics & scheduling
- Workshop supplies
- Workshop participants (selection, invitation)

THE OPPORTUNITY WORKSHOP

- Research Briefing
- Presentation of Current Service Model or Map (Journey Map, Storyboard, or Business Orgam)
- Individual Opportunity Brainstorming
- Future Service Model or Map (Journey Map, Storyboard, or Business Orgam)
- Other Prototypes may be necessary depending on how novel new opportunities are to the organization.

OPPORTUNITY SELECTION & PRIORITY

- Service feature inventory
- Weighted Feature-Value Matrix or other prioritization tool
- Some Opportunities may need Prototypes to validate.

INITIAL BLOOMPRINT WORKSHOP

- Extend journey map with organizational layers including:
 - Channels
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FUTURE BUSINESS MODEL WORKSHOP

- What does the business model canvas look like for new service offerings?

PROTOTYPING PREPARATION

- Select touchpoints and interactions
- Comparative Evaluation
- Policy Check-In
- Choose Prototyping Methods/Media
- Paper (Sketch, Storyboard, Comic)
- Screen (PowerPoint, Comic Life, Axure, Excel, HTML, Floorplan software)
- Desktop/Walkthrough
- Business Orgam
- Loop/Playmobil
- Physical Mockup
- Role play, bodystorming
- Cardboard/ Foamcore
- Poster/brochure/ Form/Telephone
- IVR, Call Centre
- Wizard of Oz
- IVR, Call Centre
- VoIP Prototype
- Concept Video/ Storyboard Animation
- Infographic

PROTOTYPING WORKSHOPS

- Create prototype of service touchpoints based on identified opportunities
- 10/31 (Generating many solutions, refining to one to test)

PROTOTYPE DESIGN AND DEVELOPMENT

- Refine, design, and produce prototypes based on workshop if workshop output requires additional design and production.

RECRUITING & LOGISTICS

- Intercepts, etc.

PROTOTYPE TESTING

- Design Review/ Critique
- Concept Testing
- Usability Testing
- A/B Testing
- Diary Study in Pilot Group

DELIVERABLES

- Expanded Opportunity Log
- Feature Value Matrix
- Business Model Canvas - Future
- Journey Maps - Future
- Initial Service Blueprint

OUTCOMES & RESULTS

- Generative divergent approach breaks status quo thinking.
- Set of options and opportunities to consider.
- Outside-in model for future services through desk top work through and future journey map.
- Execution model for future services via blueprint

PRINCIPLES

- Lead with Need & Connect
- Go Wide, Then Narrow
- Start Solo, Then Merge
- Volume Drives Vision
- Effectiveness Before Efficiency
- Create Shared Value
- Map Defining Moments
- Technology is not an answer by itself

PROTOTYPING PREPARATION

- Select touchpoints and interactions
- Comparative Evaluation
- Policy Check-In
- Choose Prototyping Methods/Media
- Paper (Sketch, Storyboard, Comic)
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RECRUITING & LOGISTICS

- Intercepts, etc.

PROTOTYPE TESTING

- Design Review/ Critique
- Concept Testing
- Usability Testing
- A/B Testing
- Diary Study in Pilot Group

DELIVERABLES

- Final Service Blueprint
- Roadmap Report
- Roadmap Infographic
- Case study of project

OUTCOMES & RESULTS

- Clear set of priorities and timeframes for action to deliver service elements.
- Clear connection between policy and delivery
- Articulate the value and benefits of service investments for government, citizens, and other stakeholders.
- Accelerate production activities by reducing uncertainty during implementation.

PRINCIPLES

- Buildings Need Blueprints
- So Do Services
- Recurse: Make Priorities Clear
- One Big Map is Better Than a Dozen Binders
- Connect Policy & Delivery
- Show Signs of Value
- Share Project Wisdom

ACTIVITIES

- Findings Review
- Blueprint Finalization
- Roadmap Workshop
- Roadmap
- Recommendations Report
- Roadmap Visualization
- Case Study & Project Sharing

ACTIVITIES

- Determine best approach to use for implementation
- Involve stakeholders early in iterative prototyping and testing
- Create a shared understanding of results from research findings and prototype testing insights
- Development of the product or service

DELIVERABLES

- Standards and guidelines
- Identification of ongoing resourcing requirements
- Product or service governance plan
- Product or service maintenance plan

OUTCOMES & RESULTS

- Clear path for teams to realize future opportunities and follow vision beyond the launch of a product or service
- Create a shared understanding, set priorities, and support the development of future products or services
- Track service improvements over time through measurement to support performance based fees for improved service delivery future strategic direction for policy changes, financial management, and change management

PRINCIPLES

- Don't Leave it till the End
- Have a Decision Point
- One Size Doesn't Fit All

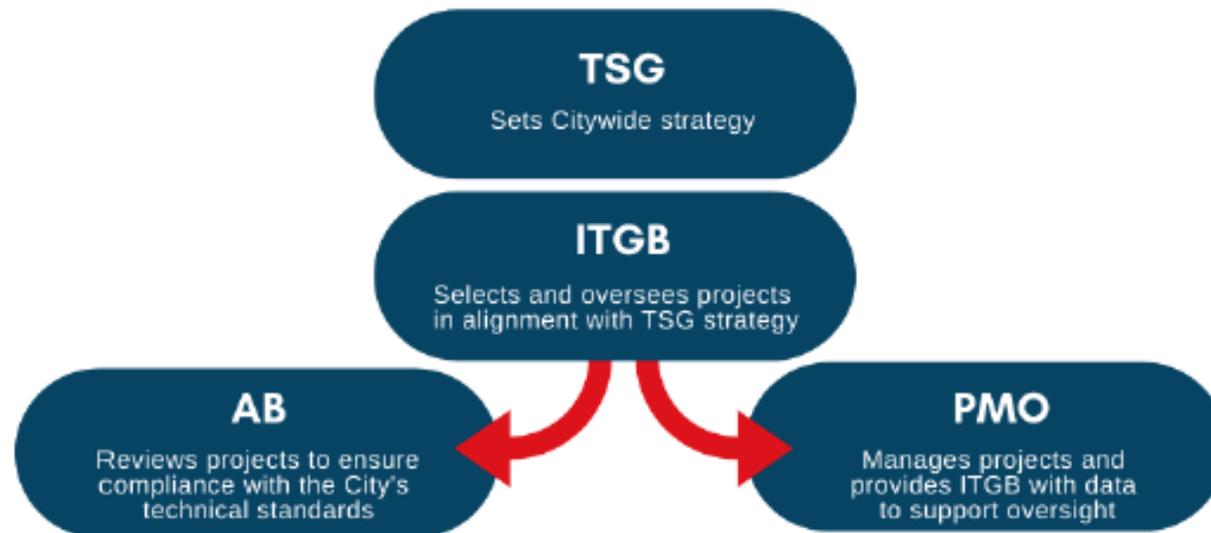
Goal 4: Put People at the Center

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.

FIGURE 1: CITY IT GOVERNANCE STRUCTURE



Source: OIG illustration based on City of Chicago Information Technology Governance Policy.

Where do the Digital Services Team and initiatives fit in?

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.



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)

Overview
<p>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.</p> <p>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.</p>

Key Activities	Description
<p>1. Conduct Resident Outreach on Digital Services</p>	<ul style="list-style-type: none"> 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
<p>2. Determine Priority Digital Services for Investment</p>	<ul style="list-style-type: none"> 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. <i>(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)</i>
<p>3. Design / Develop Resident Portal</p>	<ul style="list-style-type: none"> 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. <i>(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)</i>

Timeframe	6 – 12 months for initial outreach	One time Cost	\$150k - \$250k
Complexity	Medium	Ongoing Cost	varies

Owner	AIS / OBM	Core Duration	3 Months (budget season)
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Execution Team	<ul style="list-style-type: none"> AIS Mayor’s Office 	Key Dependencies	<ul style="list-style-type: none"> Goal 7: Ensure Equity & Accessibility
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Execution Guidance and Assumptions	<ul style="list-style-type: none"> Align efforts so that priority digital services can be included in the City’s budget planning process
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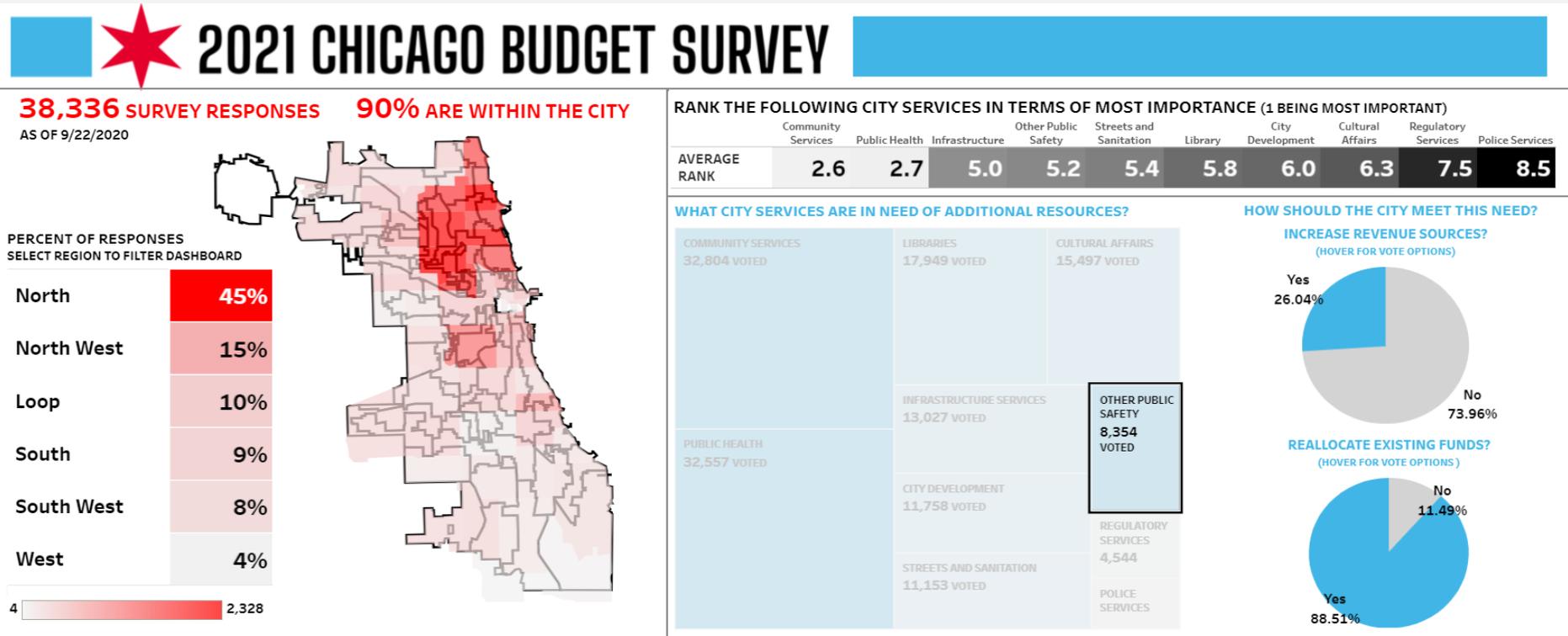
Key Artifacts Delivered	<ul style="list-style-type: none"> Materials to Support Digital Services-Specific Outreach
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Goal 4: Put People at the Center

Initiative: 4.3 – Use Resident Engagement to Identify / Prioritize Digital Services (2 of 3)

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.

GIVEN \$1000 OF CITY FUNDING, HOW WOULD YOU ALLOCATE RESOURCES?



Goal 4: Put People at the Center

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

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.

The screenshot displays the Utah Citizen Portal interface. On the left is a dark teal sidebar with the 'utah gov' logo and 'Citizen Portal' text. The main content area is white and features a navigation bar with links: 'My Dashboard' (active), 'My Official Records', 'My Property', 'Transaction History', and 'Services'. Below the navigation bar, the user is greeted with 'Welcome, John'. The 'Continue where you left off' section shows two active tasks: 'Register to Vote' (Lt. Governor's Office) at Step 2: Add Driver License, and 'Job Application' (Department of Workforce Services) at Step 3: Complete Application. The 'Favorite Services' section includes 'Driver License Renewal', 'Renewal Express', and 'Voter Registration'. A search bar and 'Browse Services' button are also present. The 'Your recent transactions' section lists a \$125.00 Vehicle Registration (7/30/2019) and a \$22.00 Food Handler's Permit (6/21/2019). The sidebar includes 'Notifications' (2 messages), 'Reminders' (property taxes due in 35 days, driver license expires in 15 days), and 'Account Settings'.



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	
<p>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.</p> <p>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.</p>	
Key Activities	Description
<p>1. Conduct User / Field Research for Scoping High Priority Digital Services</p>	<ul style="list-style-type: none"> 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)
<p>2. Update Digital Services Backlog and Roadmap</p>	<ul style="list-style-type: none"> Obtain the necessary City approvals, add the digital services to the development backlog, identify / assign resources, and update the roadmap for delivery accordingly
<p>3. Use Platform Approach to Iteratively Design / Deliver Digital Services</p>	<ul style="list-style-type: none"> 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. <i>(See 4.3 – Deliver Services Iteratively, Building Upon Strategic Technology Platforms (2 of 2))</i>

Timeframe	After 18 months	One time Cost	Varies based on prioritized service
Complexity	Medium	Ongoing Cost	\$5M - \$10M
Owner		Core Duration	
City Departments		TBD	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> AIS City Departments Ongoing 10 – 15 FTEs (part of Digital services team) 		<ul style="list-style-type: none"> Goal 1: Reimagine Workforce and Processes Goal 2: Leverage Data to Spur Innovation Goal 3: Transform City Infrastructure Goal 7: Ensure Equity & Accessibility 	
Execution Guidance and Assumptions			
<ul style="list-style-type: none"> 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 Artifacts Delivered			
<ul style="list-style-type: none"> Designed / Delivered Digital Public Services 			

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.

Level 0 Capability	Level 1 Capability																				Application	Business Capability Spend (USD)	Department											
	311	ACC	Admin Hearings	AIS BoIT	AIS_no..	BACP	Budget	Buildin..	CDA	CDOT	GDP	CDPH	COPA	DCASE	DFSS	DHR	DOF	DOH	DPD	DPS				DSS	DWM	Ethics	Finance	Fine Arts	Fire	Law	Library	MOPD	Office of the Ma..	OIG
Null				13	1						1					1			1	1	2					3				4	8	3	36	
Engage Constituents	1			1		2				2		7		2	2					1		2	3	1				1			6	5	32	
Manage City Operations	2	1		3	14	1	1	2	5	37		5			1				5	1	5	4					4			11	1	81		
Manage Risk and Compliance				1					4	3			1							1			1				1			5		13		
Provide City Administration	1	1	2	11	12	1	3		13	23		12	1	6	9	3	1	1	4	6	2	3		12		1	7	1	6	1	33	6	135	
Provide Constituent Services				1		1			1			9	2	6	5				1							1	1		3			16	5	48

Applications Supporting Constituent-Facing 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

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 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.

Exhibit 5.1 – Allocation of IT Spend (Benchmark vs. Peer Governments)

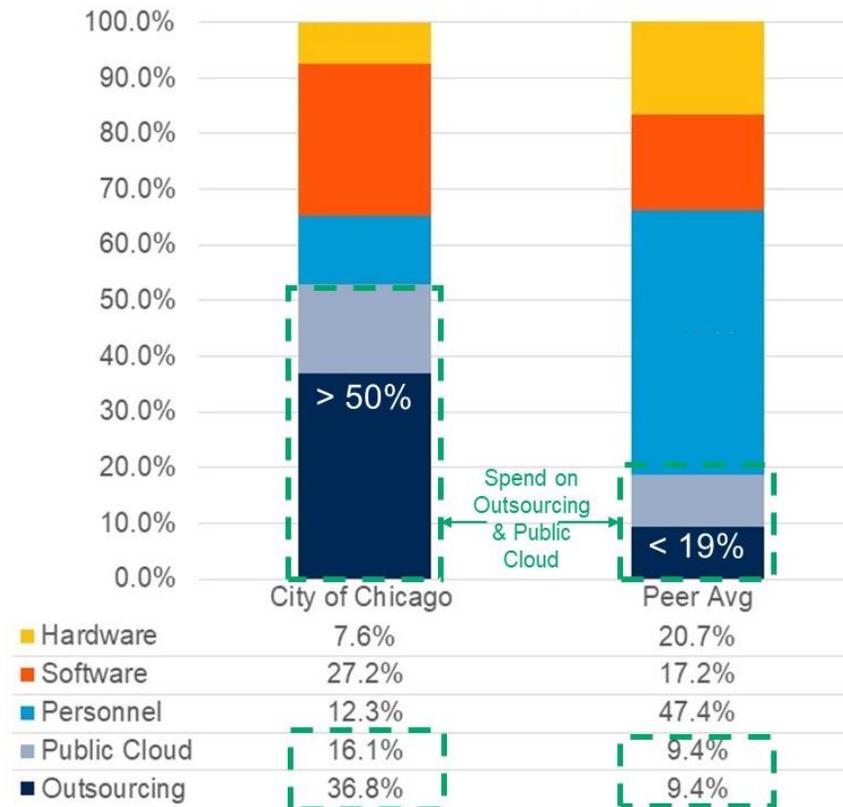


Exhibit 5.2 – Percentage of IT Projects with IT Vendor Support (2017 – 2020)



Goal 5: Collaborate to Innovate

Initiative: 5.1 – Identify Vendor Services Needed to Support Modernization

Overview	
<ul style="list-style-type: none"> 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. 	
Key Activities	Description
1. Identify Vendor Services Required to Support Modernization	<ul style="list-style-type: none"> 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 Identify the most promising initiatives for vendor support

Timeframe	6 – 12 months	Onetime Cost	NA
Complexity	Medium	Ongoing Cost	NA
Owner		Core Duration	
AIS Executive		5 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> AIS 		<ul style="list-style-type: none"> Goal 2: Leverage Data to Spur Innovation Goal 3: Transform City Infrastructure Goal 6: Ensure Equity & Accessibility 	
Execution Guidance and Assumptions			
<ul style="list-style-type: none"> Coordinate analysis with Business Relationship Managers as needed to understand department needs 			
Key Artifacts Delivered			
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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. <i>(see next slide for summary of partners and services delivered)</i> 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.

Key Activities	Description
1. Prioritize Vendor Capabilities / Capacity to Support Modernization	<ul style="list-style-type: none"> 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

Timeframe	6 – 12 months	Onetime Cost	NA
Complexity	Medium	Ongoing Cost	NA
Owner		Core Duration	
AIS Executive		6 - 8 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> AIS City Departments (Business Owners for Applications) Procurement Services 		<ul style="list-style-type: none"> Goal 2: Leverage Data to Spur Innovation Goal 3: Transform City Infrastructure 	
Execution Guidance and Assumptions			
<ul style="list-style-type: none"> 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 			
Key Artifacts Delivered			
<ul style="list-style-type: none"> Outsourcing / IT Service Provider Capabilities & Capacity Analysis 			

Current Portfolio of Outsourcing / IT Service Providers

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

Service Categories	Carminati	Catalyst	Clarity	CAI	EKI	Infor	NTT Data	SDI	Senryo	SLG Innovation	Unison	Urban GIS	W4Sight
1 – App Develop		✓	✓		✓				✓			✓	
2 - GIS			✓		✓			✓	✓			✓	✓
3 – Database Dev		✓	✓		✓			✓	✓	✓			
4 – Infrastructure Design			✓					✓	✓				
5 – Mgt Consulting		✓	✓		✓			✓	✓				
6 – Infrastructure Dev		✓	✓					✓	✓	✓			
7 – IT Consulting	✓	✓	✓		✓			✓	✓	✓		✓	✓
8 - Security			✓		✓				✓	✓			
App Support – Enterprise Apps				✓									
Airports – App Support		✓											
Airports – Security Ops								✓					
Airports – Public Address								✓					
Airports – Finance Services											✓		
Airports - Concessions											✓		
Water Mgt / 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

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.



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																																									
<ul style="list-style-type: none"> 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). 																																									
Key Activities	Description																																								
1. Select and Implement Procurement Process	<ul style="list-style-type: none"> 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 																																								
	<ul style="list-style-type: none"> 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) 																																								
	<ul style="list-style-type: none"> 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 hybrid of RFI (such as the RFI2 from the State of California as an agile procurement option) 																																								
	<ul style="list-style-type: none"> Request for Proposal (RFP): This method could be used to solicit cost and effort from the vendor community in response to specific requirements 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 																																								
<table border="1"> <tr> <td>Timeframe</td> <td>6 – 12 months</td> <td>Onetime Cost</td> <td>NA</td> </tr> <tr> <td>Complexity</td> <td>Medium</td> <td>Ongoing Cost</td> <td>NA</td> </tr> <tr> <td colspan="2">Owner</td> <td colspan="2">Core Duration</td> </tr> <tr> <td colspan="2">AIS Executive</td> <td colspan="2">6 - 8 Months</td> </tr> <tr> <td colspan="2">Execution Team</td> <td colspan="2">Key Dependencies</td> </tr> <tr> <td colspan="2"> <ul style="list-style-type: none"> AIS City Departments (Business Owners for Applications) Procurement Services </td> <td colspan="2"> <ul style="list-style-type: none"> Goal 2: Leverage Data to Spur Innovation Goal 3: Transform City Infrastructure </td> </tr> <tr> <td colspan="4">Execution Guidance and Assumptions</td> </tr> <tr> <td colspan="4"> <ul style="list-style-type: none"> 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 </td> </tr> <tr> <td colspan="4">Key Artifacts Delivered</td> </tr> <tr> <td colspan="4"> <ul style="list-style-type: none"> Outsourcing / IT Service Provider Capabilities & Capacity Analysis </td> </tr> </table>		Timeframe	6 – 12 months	Onetime Cost	NA	Complexity	Medium	Ongoing Cost	NA	Owner		Core Duration		AIS Executive		6 - 8 Months		Execution Team		Key Dependencies		<ul style="list-style-type: none"> AIS City Departments (Business Owners for Applications) Procurement Services 		<ul style="list-style-type: none"> Goal 2: Leverage Data to Spur Innovation Goal 3: Transform City Infrastructure 		Execution Guidance and Assumptions				<ul style="list-style-type: none"> 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 				Key Artifacts Delivered				<ul style="list-style-type: none"> Outsourcing / IT Service Provider Capabilities & Capacity Analysis 			
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Goal 5: Collaborate to Innovate

Initiative: 5.3 – Procure Necessary Services

*Examples of Vendor Outreach Approaches and RFI Processes***Federal Government**

- **Department of Health Services (DHS)** hosts meetings with industry representatives to discuss agency-wide program objectives and strategies at their "Strategic Industry Conversation" events
- **Department of Education** uses the RFI as an invitation to industry to provide feedback on all aspects of the planned procurements before posting the solicitation. Posted along with a draft requirements document, the RFI requests feedback on the feasibility of the planned contract type, the project schedule, the North American Industry Classification System (NAICS) code and Product Service Code (PSC), as well as if there are any barriers to competition or small business subcontracting

[Source: "Myth-Busting #4 – Strengthening Engagement with Industry Partners through Innovative Business Practices"](#)

State Government

State of California designed the RF12 (Request for Innovative Ideas) through which the State asks innovators to design solutions to its most complex problems

The RF12 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 RF12 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

Local Government

County of Los Angeles 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



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

Skill Category – Sub Category	Skills	Number of Selections	% of 4 & 5 Rating
Architecture - Cloud Architecture	Cloud Storage	21	0%
Infrastructure & Operations - Cloud Platforms	Google Cloud	19	5%
Architecture - Cloud Architecture	Cloud Security	18	6%
Architecture - Cloud Architecture	Cloud Networking	16	6%
Applications Development - Languages/Frameworks	XML	24	8%
Applications Development - Design	Mobile Design	22	9%
Applications Development - Languages/Frameworks	C++	29	10%
Infrastructure & Operations - Enterprise Networking	VPN (VPLS/MPLS/GRE/DMVPN/mGRE/IPSec/VPC)	28	11%
Applications Development - Development	Role Based Access Control (RBAC)	18	11%
Applications Development - User Experience	User Experience (UX) Design	34	12%
Infrastructure & Operations - Service Management	Incident Management	25	12%
Information Management - Doc & Records	Data Privacy Compliance	32	13%
Applications Development - Languages/Frameworks	jQuery	16	13%
Information Management - Database Management and Operations	Data Privacy	23	13%
Infrastructure & Operations - Enterprise Networking	Network Diagnostics, Monitoring and Debugging	22	14%
IT Business Management - Policy	Policy Governance	22	14%
Information Management - Doc & Records	Records Management and Retention	29	14%
Information Management - Database Management and Operations	Database Backup and Recovery	34	15%
Applications Development - Languages/Frameworks	Postgres SQL	20	15%
Applications Development - Languages/Frameworks	Python	20	15%

Skills: Bottom 20 Skills

Overall low cloud proficiency skillsets

Overall low cloud proficiency for mobile & UX

Note: Based on % of 4 & 5 rating and no. of selections > 15 (10% of total participants).

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.

Exhibit 6.2 – Top Training Requests from City Staff

Skill Category	Skill	# with Training Request (1)	# People Possess the Skill (2)	% of Training Request (1/2)
Infrastructure & Operations - Cloud Platforms	Google Cloud	32	19	168%
Applications Development - Digital	API and Services Platform Design	28	17	165%
Applications Development - Design	Mobile Design	35	22	159%
Architecture - Cloud Architecture	Cloud Security	24	18	133%
Applications Development - CRM	UX Personalization and Targeting	31	24	129%
Applications Development - CRM	Content Strategy	36	29	124%
Information Management - Stewardship and Governance	Data Quality Management	21	17	124%
Applications Development - Development	Linux Shell Scripting	22	18	122%
Infrastructure & Operations - Systems Administration	Database Backup and Recovery	23	19	121%
Applications Development - Design	Rapid Prototyping	24	20	120%
Delivery - Portfolio Management	Portfolio Planning	24	20	120%
Delivery - Portfolio Management	Tech Risk Governance	25	21	119%
Applications Development - Development	Linux Administration	19	16	119%
Information Security - Collect and Operate	Vulnerability Scanning, Tracking and Reporting	19	16	119%
Applications Development - Design	UML Diagramming	20	17	118%
Applications Development - Languages/Frameworks	JSON	20	17	118%
Information Management - Analytics	Segmentation/Filtering	22	19	116%
Architecture - Cloud Architecture	Cloud Storage	24	21	114%
Applications Development - CRM	Campaign Programming and Execution	34	30	113%
Applications Development - User Experience	Persona Development	18	16	113%

Top Training Requests (N=150)

1) means number of participants
Note: Top Requests are based off of highest % of requests that have > 10% participants.

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
<ul style="list-style-type: none"> 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.

Key Activities	Description
1. Define Job Families	<ul style="list-style-type: none"> Categorize current jobs into new job families needed to support required skill sets. (Job families will help organize similar roles together to facilitate standardization and clearer career paths.) <i>(see next slide for an example of a job family)</i>
2. Define New Roles	<ul style="list-style-type: none"> Insert new roles into the job families as required to support modernization initiatives (e.g., cloud architect, data scientist, etc.) while accommodating the roles to be primarily supported by external partners
3. Update Job Descriptions	<ul style="list-style-type: none"> Create job descriptions for each new role, using market-available samples as a starting point Update existing job descriptions, as needed to align with market trends
4. Develop and Validate Career Paths	<ul style="list-style-type: none"> Determine the number and type of career paths for each job family, accommodating civic service rules, grades / classifications, and compensation levels Prioritize career paths in alignment with the roles to be provided by outsourcing partners / other service providers to minimize redundancies
5. Partner with HR to Execute	<ul style="list-style-type: none"> Work with HR to incorporate new roles into broader organizational structures, recruiting materials, and individual employee career development plans

Timeframe	0 – 6 months	Onetime Cost	\$100 k – \$200 k
Complexity	Medium	Ongoing Cost	\$50 k - \$100 k
Owner		Core Duration	
AIS Executive		4 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> HR / Labor Relations AIS Managers 		<ul style="list-style-type: none"> Goal 1: Reimagine Workforce & Processes 	

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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)

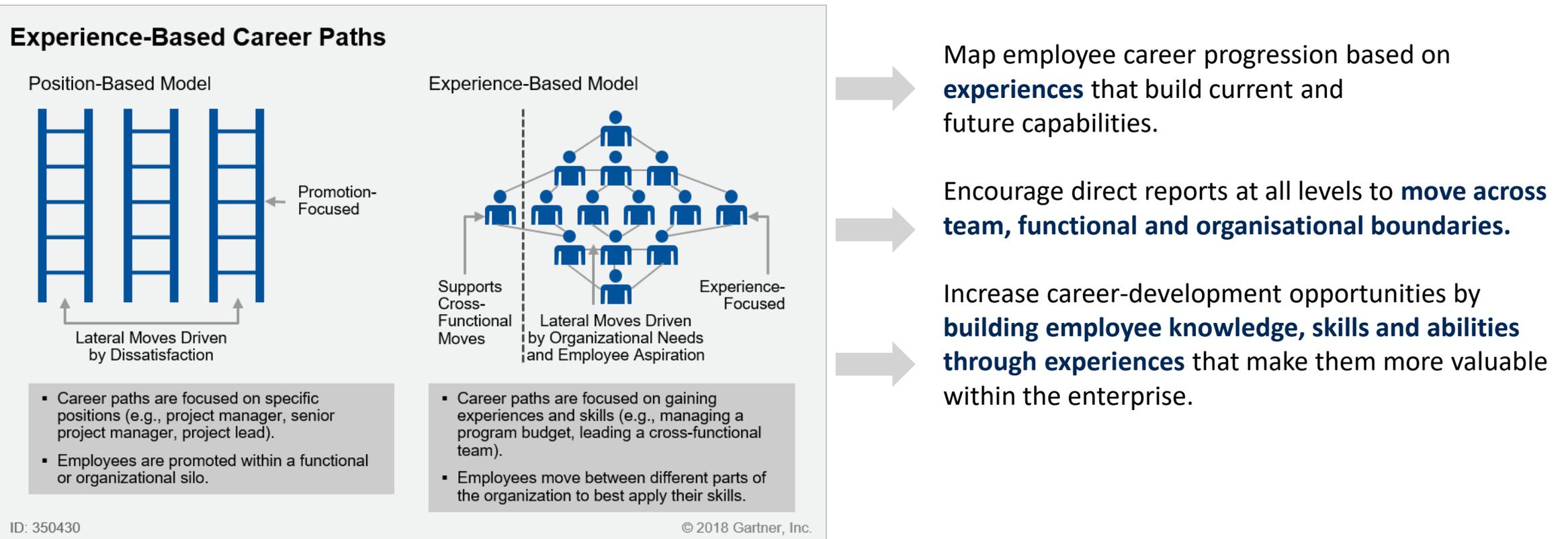
<p>1 Job Family Highest grouping of related positions</p>	<p>Technical Architecture</p>		<p>IT Strategy & Management</p>		
<p>2 Job Series Career progression paths</p>	<p>Domain Architecture</p>	<p>Information Architecture</p>	<p>Business Analysis</p>		
<p>3 Job Description Specific roles (i.e., position titles)</p>	<p>Application Architect Cloud Architect</p>	<p>Data Scientist Data Analyst</p>	<p>Business Relationship Manager</p>	<p>Business Analyst</p>	<p>Business Process Analyst</p>
<p>4 Competencies "Softer" skills, individual attributes / traits</p>	<p>Analytical Thinking Design Thinking Adaptability Knowledge / Interest in Emerging Technology</p>	<p>Analytical Thinking Adaptability Knowledge / Interest in Emerging Technology</p>	<p>Analytical Thinking Adaptability Collaboration Customer-Focus</p>		

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.

Goal 6: Empower & Inspire

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

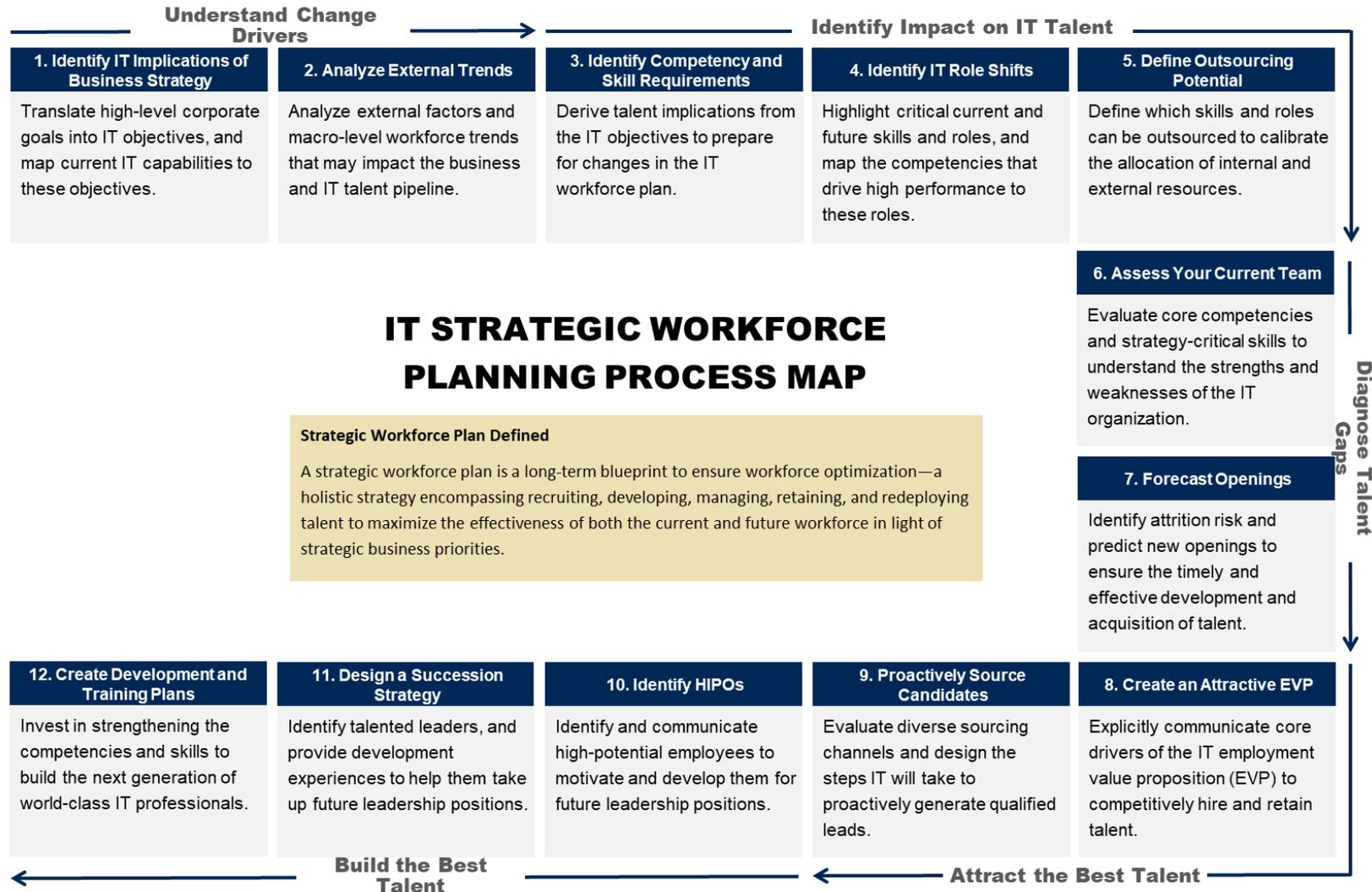
Experience-based career paths provide an expanded approach to career progression, promoting different experiences to gain new skills over exclusively developing deep expertise.



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)



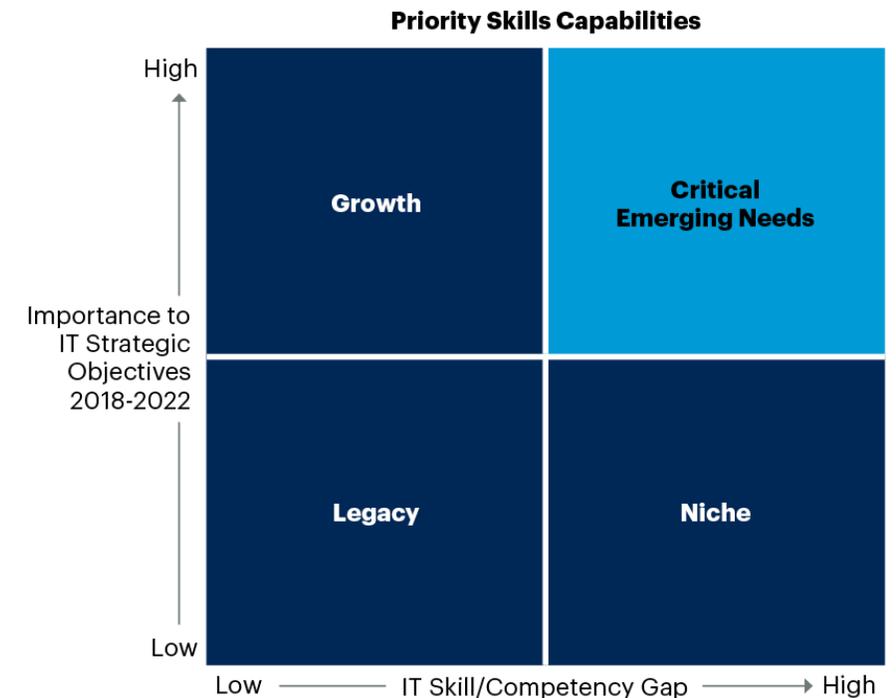
Goal 6: Empower & Inspire

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.

Example I&O Organization Talent Quadrant



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 **established 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.

The Forward Filling Framework Process for I&O Staff





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
<ul style="list-style-type: none"> 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.

Key Activities	Description
Identify open positions and create job descriptions	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

Timeframe	0 – 6 months	Onetime Cost	NA
Complexity	Medium	Ongoing Cost	NA
Owner		Core Duration	
AIS Executive		12 – 18 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> HR / Labor Relations AIS Managers 		<ul style="list-style-type: none"> Goal 1: Reimagine Workforce & Processes Goal 2: Leverage Data to Spur Innovation Goal 3: Transform City Infrastructure 	

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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

Goal 6: Empower & Inspire

Initiative: 6.3 - Update IT Training Program to Address Skills Gaps

Overview
<ul style="list-style-type: none"> 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	Description
1. Confirm Prioritized Skills and Gaps	<ul style="list-style-type: none"> 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
2. Adjust Current Learning & Development Portfolio	<ul style="list-style-type: none"> 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.)
3. Modify and Implement IT Training Programs	<ul style="list-style-type: none"> 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)

Timeframe	0 – 6 months	Onetime Cost	NA
Complexity	Medium	Ongoing Cost	NA
Owner		Core Duration	
AIS Executive		4 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> HR / Labor Relations AIS Managers 		<ul style="list-style-type: none"> Goal 1: Reimagine Workforce & Processes Goal 2: Leverage Data to Spur Innovation Goal 3: Transform City Infrastructure 	

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> Updated IT Training Program



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
<ul style="list-style-type: none"> 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.

Key Activities	Description
1. Define Succession Needs	<ul style="list-style-type: none"> Create an inventory of roles that support the City's mission critical systems / initiatives Identify the personnel that are currently in those roles 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)
2. Identify Potential Candidates	<ul style="list-style-type: none"> Leverage skills assessment data from the Current State Assessment to help identify potential candidates for filling prioritized roles Document the pipeline of talent in a succession planning document
3. Develop Plans for Individual Readiness	<ul style="list-style-type: none"> Create an employee development / knowledge transfer plan to prepare individuals for succession into the target roles Conduct frequent reviews to assess the progress and readiness of individuals and refine and adjust succession plans / approaches to align with changing business needs

Timeframe	0 – 6 months	Onetime Cost	\$100 k – \$200 k
Complexity	Medium	Ongoing Cost	NA
Owner		Core Duration	
AIS Executive		4 Months	
Execution Team		Key Dependencies	
<ul style="list-style-type: none"> HR / Labor Relations AIS BoIT Managers 		<ul style="list-style-type: none"> Goal 1: Reimagine Workforce & Processes 	

Execution Guidance and Assumptions
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> Succession Plan



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

Tuesday, May 11, 2021			
EVENT TYPES <input checked="" type="checkbox"/> Computers and Technology (41) <input type="checkbox"/> Art, Movies and Performances (67) <input type="checkbox"/> Author Events (8) <input type="checkbox"/> Book Clubs (145) <input type="checkbox"/> Business, Law and Money (25) <input type="checkbox"/> Celebrations (4) <input type="checkbox"/> Continuing Education and College (5) <input type="checkbox"/> Crafts, Games and Play (216) <input type="checkbox"/> DIY (123) <input type="checkbox"/> Health and Science (114) <input type="checkbox"/> History and Genealogy (18) Show more	3:30PM - 4:30PM	Digital Video Play » Part of YOUmedia	
	Online event	11 seat(s) remaining <small>Computers and Technology DIY / Teens</small>	
	Wednesday, May 12, 2021		
PROGRAMS <input type="checkbox"/> Latinx Heritage (1) <input type="checkbox"/> Maker Lab (31) <input type="checkbox"/> YOUmedia (4)	AUDIENCES <input type="checkbox"/> Adults (33) <input type="checkbox"/> Kids (3) <input type="checkbox"/> Teens (6)	4:00PM - 5:00PM	Design A 3D Printed Key Chain » Part of Maker Lab
		Online event	12 seat(s) remaining <small>Computers and Technology / Adults</small>
		Thursday, May 13, 2021	
PROGRAMS <input type="checkbox"/> Latinx Heritage (1) <input type="checkbox"/> Maker Lab (31) <input type="checkbox"/> YOUmedia (4)	AUDIENCES <input type="checkbox"/> Adults (33) <input type="checkbox"/> Kids (3) <input type="checkbox"/> Teens (6)	3:00PM - 4:00PM	Selling Your Designs Online » Part of Maker Lab
		Online event	3 seat(s) remaining <small>Computers and Technology / Adults</small>
		3:30PM - 4:30PM	Digital Video Play » Part of YOUmedia
		Online event	12 seat(s) remaining <small>Computers and Technology DIY / Teens</small>

MyCHI My Future Technology Learning Opportunities

All Topics

- Building and fixing things
- Computers**
- Digital media
- Food
- Helping your community
- Learning as a lifestyle
- Managing money
- Music & Art
- Nature
- People & cultures
- Performance
- Reading & writing



Microsoft Digital Literacy: Certificate Test

Microsoft



Microsoft MakeCode

Microsoft



Make A Website Using HTML/CSS- Recorded TechGirz Virtual Workshop External Activity

TechGirz



Minecraft Education Edition

Microsoft



Digital Youth Divas

Digital Youth Network



STEM Academy

Project SYNCERE

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	Description
1. Complete and Continuously Improve the City of Chicago Design System Accessibility Site	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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).

Complexity	Medium	Cost	N/A
Owner	Core Duration		
AIS	Ongoing		
Execution Team	Key Dependencies		
<ul style="list-style-type: none"> AIS 	<ul style="list-style-type: none"> Goal 4: Put People at the Center 		
Execution Guidance and Assumptions			
<ul style="list-style-type: none"> Reference the Accessibility Site as part of the Digital Services Playbook being developed as part of Goal 4 			
Key Artifacts Delivered			
<ul style="list-style-type: none"> Updated and Maintained Accessibility Site within Chicago Design System 			



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 <p>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.</p> <p>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.</p>		Complexity Medium	Cost N/A
		Owner AIS	Core Duration 3 months
		Execution Team <ul style="list-style-type: none"> AIS Office of Equity and Racial Justice 	Key Dependencies <ul style="list-style-type: none"> Goal 4: Put People at the Center
Key Activities		Description	
1. Analyze Resident Engagement Survey Outcomes	<ul style="list-style-type: none"> Complete the data analysis and tabulate the outcomes from the resident IT engagement. Share the outcomes with the appropriate City stakeholders. 		
2. Work with Chief Equity Officer to Define Digital Equity Metrics	<ul style="list-style-type: none"> 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. 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. 		
Execution Guidance and Assumptions <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Equity Metrics for Digital Services engagements 			

Examples of Digital Equity Key Performance Indicators (KPIs)

- 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.

Metric Definitions			
Citizen Type	Metric Name	Metric Description	Weighting Within Citizen Type
Digitally Present Citizen	Household broadband internet access	The number of fixed broadband subscriptions is taken from World Bank data and applied to data on the underlying population of each country to derive household internet access.	17%
Digitally Present Citizen	Internet of Things (IoT) devices per capita	Gartner’s IoT forecast for the total installed base of devices in 2019 at the country level is divided by the population for each country.	7%
Digitally Present Citizen	E-commerce revenue per citizen	Data from E-marketer and others for retail e-commerce and mobile commerce (m-commerce) sales revenues for each country in U.S. dollars are divided by the population for each country.	10%
Digitally Present Citizen	Spend on subscription video on demand (VOD)	Statista’s video streaming data on spending (in U.S. dollars) by country.	6%
Digitally Present Citizen	Ease of e-government	Ease of e-government is based on the United Nations E-Government Survey, which assesses the use of IT in the public sector and assigns a development status to each country.	10%
Digitally Present Citizen	Percentage of employees who work from home	The percentage of employees who regularly work from home or engage in telework at least one day per week, is taken from a variety of sources. Regional proxies are used where data is unavailable.	9%
Digitally Present Citizen	Smartphone ownership	Smartphone penetration of the population, calculated by dividing smartphone users by the total population per country, is derived from a variety of sources such as the GSMA and E-marketer.	15%
Digitally Present Citizen	Exclusiveness of internet	Country rating based on how available and affordable the internet is in each country.	16%
Digitally Present Citizen	Presence of data protection law	Each country is evaluated individually for whether it has national laws covering data privacy, data protection rules and principles, data controller obligations, consent of individual citizens, rights of access over personal data, and security requirements.	10%
Digitally Active Citizen	Percentage of population using internet everyday	Percentage of the population who access the internet at least once per day, for personal or business purposes, through any device, assessed from E-marketer and individual national sources.	21%
Digitally Active Citizen	Social media penetration	The number of active users of the top social networks within each country is compared with the total population of each country, taken from Smart Insights data.	16%
Digitally Active Citizen	Sharing economy	Usage of the sharing economy is assessed from the Timbro Sharing Economy Index, which is based on geographic traffic volume data for sharing economy services.	15%
Digitally Active Citizen	Telemedicine equipment	Installed base of fixed and mobile telemedicine equipment by country, calculated per capita from the Gartner IoT forecast.	10%
Digitally Active Citizen	Population posting content online	The percentage of survey respondents in Google’s Consumer Barometer who stated that they posted content on Internet sites, with additional country proxies.	15%
Digitally Active Citizen	Industrie 4.0 penetration	Readiness for the Future of Production as assessed by the World Economic Forum. Determines the penetration of the Fourth Industrial Revolution across industries.	6%



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: 7.3 – 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	Description
1. Define Digital Equity Action Plan	<ul style="list-style-type: none"> Work with the Technology Strategy Group and the Office of Equity and Racial Justice to identify the action plan / guidelines for incorporating digital equity KPIs into the performance measures for technology projects. Incorporate this action plan into the appropriate City policies and processes, including the Digital Services Playbook.
2. Apply Digital Equity Metrics to Modernization Efforts	<ul style="list-style-type: none"> 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		
Execution Team	<ul style="list-style-type: none"> AIS Office of Equity and Racial Justice Technology Strategy Group Chief Data Officer 		
Core Duration	Ongoing		
Key Dependencies	<ul style="list-style-type: none"> Goal 4: Put People at the Center 		
Execution Guidance and Assumptions			
<ul style="list-style-type: none"> 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			
<ul style="list-style-type: none"> Updated Digital Services Playbook 			