



SUBJECT: Transforming design and delivery of services – evolution of information technology services (ITS) department – Burlington digital service (BDS)

TO: Corporate Services, Strategy, Risk & Accountability Cttee.

FROM: Information Technology Services Department

Report Number: IT-02-23

Wards Affected: All

File Numbers: 200-03

Date to Committee: January 9, 2023

Date to Council: January 24, 2023

Recommendation:

Receive and file information technology services department report IT-02-23 providing background information for upcoming 2023 budget requests and supporting design and evolving organization initiative.

PURPOSE:

To provide Council, in advance of Council's 2023 budget deliberations, additional detail following the Designing and Evolving our Organization CM-24-22 report given on September 14, 2022:

- City of Burlington Functional Design
"Information Technology Service (ITS) transformed to Burlington Digital Service (BDS) with the refinement of functional areas to expand beyond the traditional functions (e.g. network operations, information and data security, and application and solution support) to functions supporting digital enterprise architecture, product delivery and decision support, and human-centered delivery;"
- Endorsed Future State Management Structures
"...the updated management structure for Burlington Digital Service including update of leadership title to Chief Digital & Information Officer"

Vision to Focus Alignment:

- Increase economic prosperity and community responsive city growth
 - Support sustainable infrastructure and a resilient environment
 - Building more resident engagement, community health and culture
 - Deliver customer centric services with a focus on efficiency and technology transformation
-

Background and Discussion:

IT STRATEGY

In late 2016, ITS delivered and received approval of a 5-year strategic plan. As 2022 approached and planning for the next 5 years began, ITS and City leadership reviewed the current environment, what had been learned during the last strategic period and the emerging needs of the organization and community. What transpired was the need for a modern approach to technology enablement and the creation of a digital strategy which goes beyond traditional information technology (IT). A digital strategy addresses the business, operating, and technology models creating digital business optimization. This optimization translates into improved customer and staff experience and productivity; business transformation producing new products and services; and a new business model for service delivery to support the transformation. The objective is to create a strategy which focuses on how digital technologies can enable the organization.

This transformative change applies to existing procedures, capacity, skills, tools, ways of working and relationships. As introduced at Corporate Services, Strategy, Risk and Accountability Committee on September 14, 2022 (Report CM-24-22), the City is continuing to evolve and set out a vision for the future of the City of Burlington through the Designing and Evolving our Organization process. In 2022, the City finds itself operating in a changed environment. Some of our services require in-person or physical delivery while other services can now be delivered in a virtual manner. There is growth in human-centric service delivery expectations. An increase in technology spending. A sprawling expansion of our technology footprint mainly driven through cloud solutions. The market for talent is intensely competitive. These changed environments foster evolution. Specifically outlined in the report to respond to these environmental changes was "Information Technology Service (ITS) transformed to Burlington Digital Service with the refinement of functional areas to expand beyond the traditional functions (e.g. network operations, information and data security, and application and solution support) to functions supporting digital enterprise architecture,

product delivery and decision support, and human-centered delivery.” This report furthers this direction and expands on the rationale and benefits to the City of Burlington.

INDUSTRY TRENDS

During the course of the last decade, and further accelerated due to the pandemic, technology needs and expectations have taken an irreversible stride forward. This has resulted in a need to hasten our ability to meet the needs of the community while being efficient and cost-effective by utilizing technology.

Many government organizations, including Burlington, demonstrated **success in offering new, better and technology enabled services during the pandemic**. While the pace of change during the pandemic may not be sustainable, the risk of quickly reverting to legacy processes and mindsets threaten the positive momentum and outcomes gained.

The **role of IT has also been steadily transitioning**. Historically, IT was seen as simply a tool to enable the scaling of business processes with a core focus on infrastructure and support of comprehensive applications. The skills of IT were mostly centred on the ability to effectively and efficiently manage this infrastructure and applications behind the scenes. Today, applications have become more ubiquitous, dependency on technology to enable business outcomes has grown and data has become a prominent consideration in providing insights into how to improve business outcomes and solve societal challenges. As a result, information integration across ecosystems, human-centricity, third-party partnerships and large-scale innovation, optimization, and transformation are now possible.

Digital services teams are given a **mandate to rapidly implement change initiatives** using commercially-developed tools and processes such as human-centered design and agile innovation management techniques—which are standard practice in the private sector but have been infrequently adopted in the public sector to date. This is especially important in a pandemic and post-pandemic environment when the demand for digital services to support traditional government delivery is soaring to provide continuity of service, increase efficiencies and meet the emerging demands of society.

Governments are leveraging emerging technologies, like Artificial Intelligence (AI) and advanced analytics, to reliably and accurately detect and predict shifts in risk, opportunity and outcomes. They are accelerating the transition to digital by taking an “outside in” approach to service design using techniques, like human-centered design and co-creation.

In a report by Gartner in 2021¹, over 1800 organizations used a six-scale maturity model to respond to a simple question, “Which of these best describes the stage of your organizations digital initiative?”. “No Digital initiative fell from 9% to 2% between 2017 and 2020. The final two levels are considered “maturing” stages and increased from 17% to 48% in the same period. This significant increase demonstrates the rapid adoption of digital over the three year period and illustrates the importance organizations are placing on digital initiatives to secure their future. Burlington is not an early adopter of this required transition and is lagging other organizations. This can be seen as an opportunity as we learn from other’s experiments.

In another study², a direct correlation was identified between governments that have a diversified digital program and successfully scaling the benefits of digital across the organization. Common stated objectives are improving the resident or user experience of the organization, improving operational efficiency and improving outcomes associated with the public purpose or mission. Challenges also are quite common including siloed strategies and decision making, business culture blocking change and insufficient funding/budgets. There are key technologies supporting transformative moves such as machine learning supported predictive analytics or data mining, chatbot or conversational agents and integration platforms and practices including agile project delivery, DevOps³ and human-centred design/design thinking.

Locally, Halton Region has defined a ‘Halton Digital Strategy’, Oakville a ‘Digital Oakville’ and Hamilton a ‘Digital Transformation & Smart City’. Provincially, the Ontario Government has established Ontario Digital Service with a mandate to transform technology enabled delivery within the provincial government. Beyond local, federally there is a Canadian Digital Service supporting federal initiatives and internationally, there is the early leadership of the UK.

Digital service teams in government operations have encountered seven challenges⁴:

- Embracing an agile development approach;
- Attracting IT talent from the private sector;
- Maintaining and scaling a start-up culture in government;
- Improving the acquisition of innovative IT;
- Funding digital service teams;
- Addressing whether innovation should be “bought or built”;

¹ Engage Stakeholders in Building a Digital Business Roadmap Published 12 July 2021 - ID G00740685

² Transitioning to Digital Government in 2022 Published 22 October 2021 - ID G00751559

³ “a collaborative or shared approach to the tasks performed by a company’s application development and IT operations teams.” <https://www.techtarget.com/searchitoperations/definition/DevOps>

⁴ Digital Service Teams: Challenges and Recommendations for Government” (Washington, D.C., IBM Center for The Business of Government, 2017

- Shifting existing skilled resources.

When establishing the team in a government context, some often cited impediments are:

- Understanding that digital transformation in government is not a “software problem,” but requires a holistic and strategic approach;
- Using “outside-the-box” thinking to infuse innovation into acquisition strategies;
- Phasing-in the use of new cost models to support digital services teams;
- Including non-technical employees as part of digital services teams;
- Challenging perceptions that “innovation can’t happen here,” given existing regulatory and cultural constraints;
- Confronting the status quo or “the way we have always done things”;
- Enlisting facilitative leaders to champion digital transformation;
- Promoting greater collaboration among digital service teams and IT stakeholders.

Even with the challenges and impediments, the benefits far outweigh them and include:

- Understanding residents’ needs better and achieving better customer-focused outcomes;
- Providing services more effectively and efficiently;
- Finding new solutions to policy challenges;
- Engaging with external partners to develop new delivery models;
- Commercializing some public services and developing fresh sources of revenue.

Organizational leaders across sectors often agree that digital transformation is a priority. They might believe that digital is all about technology – in reality, digital transformation involves delivering outcomes through technology and data to enhance efficiency and clarity of mission.

ISSUES WITH CURRENT OPERATIONS AND BENEFITS TO CITY AND COMMUNITY THROUGH TRANSFORMATION

Developing solutions for people both increases satisfaction and access to services while ensuring the City is able to deliver on its mission. Through user feedback, industry and residential users have identified challenges in navigating services or completing forms and data has shown a low complete and accurate rate for applications which supports this feedback. A human-centered design (HCD) practice will ensure we understand our stakeholders better and achieve better outcomes. Residents, businesses and visitors enjoy integrated, resident-centered services that are available whenever and wherever they need them. This includes finding new solutions to policy challenges such as housing.

To overcome siloed strategies outlined as a common challenge above, the City’s digital service approach will develop a common vision, strategy and roadmap which will

provide alignment across the enterprise, provide input into future planning, greater clarity as to the priorities of initiatives and break down silos. This is particularly important as illustrated by Gartner who predict that by 2023 over 60% of governments will have tripled resident digital services but less than 25% will be integrated across organizational silos.

Data across the organization is not highly integrated or accessible. Use of data is backward facing or what has already happened in most cases. In order to deliver the services in the future and tackle societal challenges, we must anticipate or become more predictive or anticipatory in nature using data. Digital Service will support this in several ways through a data strategy, platforming, data integration and utilizing data as an asset.

Enabling the workforce ensures we make efficient use of scarce resources. For example, in the By-Law team the organization will continue to have pressure to add more resources to achieve business outcomes unless we use technology to support the business processes. Use of technology such as AI and predictive data analysis can enhance the services the team provides and their utilization by providing insight as to areas to focus on or trends that are occurring and may indicate an emerging challenge.

Introduction of emerging technologies such as machine learning, chatbots, integration platforms and delivery models such as agile project delivery and DevOps will decrease the time in which the organization can deliver on emerging needs and increase our efficiency. The outcomes include faster time to value delivered more iteratively instead of many months or years between value recognition.

The current application landscape for the City is overly broad and complex, contains numerous areas of duplication and is increasingly costly to maintain. Digital Service resources will embark on a software application rationalization program to reduce the technology footprint and increase the utilization of remaining applications resulting in a less costly and difficult to maintain environment.

Third-party partnerships and the use of third-party Application Programming Interface (APIs) and systems are essential to balance the work completed within the internal team and what can be purchased as a commodity or skills that are difficult to retain. A greater focus on engaging with external partners will provide a long-term predictable outcome while ensuring the organization is fiscally responsible and in control of our strategic direction. To do so will require new procurement models which will be developed as part of the transformation.

A key pillar in a successful execution of our digital maturity will be democratizing IT and embracing business technologists and fusion teams. By doing so, we will enable the business areas to self-serve and configure new services through low code supported by our move to technology platforms and a digital marketplace. This will further increase

our ability to meet emerging customer and internal needs timelier and deliver services which are embraced by users as they are being defined by those who know our stakeholders intimately.

Existing capacity related to technology is a significant challenge today to support the current landscape; let alone address emerging needs and deliver on the organizational strategic objectives. The IT organization itself is under resourced and lean as confirmed by the recent KPMG in the Web Architecture Review report (CSSRA agenda item CX-01-23). The human capital investments are key to support the benefits of the digital vision. This includes a focus on strategic execution through the establishment of a director level capacity which seeks to look beyond operations (traditional IT) and the introduction of new skills through human-centered design resources and more efficient use of resources through alignment of centres of excellence in delivery.

Attraction and retention of resources is a significant challenge for organizations across Canada and the World. The talent competition is fierce and with remote working more prominent, competition is no longer contained to the local geography in many cases. The challenge for public sector organizations is more challenging as we are now competing for these scarce resources with the private sector where we cannot compete on salary. In a recent global talent survey ⁵for Q2 2022, 16% of non-IT employees and 43% of IT employees are actively job seeking and candidates have at least 3 offers to consider for 49% of non-IT employees and 76% of IT employees. Therefore, we need to find other ways to both attract and retain resources. Contributing to community outcomes, engagement in a transformational activity such as the digital journey and working for a progressive city provides for a purpose greater than oneself and personal gratification as well as career development. These factors in addition to the other great benefits to working for the beautiful City of Burlington will enhance our ability to attract and retain.

Fiscal responsibility for a public entity is a top priority. Through the activities of Digital Service, we will provide opportunities for efficiencies, cost savings and fresh sources of revenue while delivering exceptional services.

Digital is more than information technology. Digital transformation involves delivering better outcomes enabled by technology and the use of data to support the core mission of City and to genuinely transform and redesign services and resident experiences. Burlington Digital Service sets standards, develops platforms and assists the enterprise to build and deliver simpler, faster, cost efficient, better, common user-experienced municipal services and products for those who live, visit and do business in Burlington.

⁵ 2Q22 IT Workforce Report: IT Employees Confident in Job Market Prospects Despite Economic Headwinds Published 23 August 2022 - ID G00774747

In summary, Burlington Digital Service will advance the City and support:

- Human-Centred Design (HCD) – enabling the identification of needs and outcomes through the delivery of services with an efficient, timely and innovative approach with the user in mind resulting in services designed for both the City and the user which are embraced;
- Digital Enablement - digitally enhancing service capabilities to address user and service area needs quicker, decrease time to delivery of outcomes and create new business models;
- E-Government – turning life events into digital civic moments or digital twins allowing for enhanced multichannel delivery of services, effective compliance activities and greater convenience for residents, employees, businesses and visitors;
- Open Government – promoting transparency, resident engagement and the data economy;
- Data-Centricity – leveraging data to promote a better understanding of situations which result in informed decision making and proactive services for residents; and
- Being proactively smart – actively identifying and developing transformation opportunities becomes institutionalized enabling the organization to react to sudden or predictable events as well as prevention of events or prescribing behaviors;
- Establishing a sustainable, feasible and financially responsible technology landscape;
- The city’s recovery from COVID-19 and emerging user needs by providing digital leadership and tools to enable services to be rapidly built and deployed;
- Increasing the use of shared platforms and components across the organization;
- Increasing our competitiveness for talent;
- Departments by strengthening their digital capability and providing direct support for major digital projects;
- Enhancing our digital capability through education and the development of innovative processes, solutions, and digital leadership; and
- Leading the city’s progressive digital transformation and contribute to the visionary objectives contained in Vision to Focus and Burlington’s Vision 2040.

EXPERIMENTATION AT CITY OF BURLINGTON

The vision and benefits of a digital strategy are not just theory or unproven. Beyond the City, there is significant research and data on the positive outcomes of executing a digital strategy. In 2022, the City had a unique opportunity to experiment or test what works for the City through the Streamlined Development Application Fund (SDAF)

project. During the project, the team chose to embrace several new ways of working related to areas of development for digital transformation:

- Continuous improvement – utilizing Lean practices, the team successfully identified areas of process improvement and over a series of adjustments has resulted in a significantly improved process and reduced processing and elapsed time for applications;
- Fusion teams - A fusion team is a multidisciplinary team that blends technology or analytics and business domain expertise and shares accountability for business and technology outcomes. The SDAF team was comprised of members across the enterprise organized by cross-cutting business outcome of low-density residential development. The outcome was the development of stronger processes and solutions which address all stakeholder needs and shared accountability across the team;
- Human-Centered Design - the key stakeholders of a government service are either involved or represented in the solution design process. In this case, members of the development community were invited to co-create process improvements and technology-enabled solutions including providing requirements and testing solutions while developing mutual empathy;
- Agile Development - Agile development produces higher-quality products that better meet user needs. Effective collaboration, adaptive planning and rapid feedback enable continuous learning, reduce time to market and increase return on investment. For the SDAF project, the benefits were evident in the team developing requirements, designing a technology-enabled solution and delivering a working prototype in less than 4 weeks. This was a significant improvement over prior development;
- Platform Development - a platform approach to digital government focuses investments on business benefits, reusable components, integration, timely response to emerging business outcome needs and cost effectiveness. Utilizing a Microsoft platform, the team identified, procured and established a development environment in just over twenty-four hours at a reasonable cost which can be easily scaled and integrated.

RISKS IN NOT ADDRESSING

The City faces significant impact from not making these human capital, process and skills investments:

1. Organization Mission:
 - a. Impact our ability to successfully delivery on Vision 2040 and V2F objectives.

- b. This is especially true for our ability to deliver impactful resident-focused services which are embraced.
 - c. Increased time required to develop and deliver solutions and therefore harvest value.
 - d. Inability to create the strategies and plans necessary to be proactive in advancing the City.
 - e. Impact to resident, business and visitor engagement.
 - f. Inefficient utilization of scarce resources.
 - g. Ability to support emerging technology needs will not be possible and existing technology support may degrade.
 - h. Impact on our brand both in our ability to deliver on emerging service needs and as an employer of choice.
2. Decision Making:
- a. Inability to utilize data driven decision making for both operations and strategic direction.
 - b. Limited insight and decreased accountability to inform business process or service changes.
 - c. Information sharing is diminished without sufficient leadership resources to effectively guide the organization.
 - d. Inability to fully utilize our data asset.
3. Human Resources:
- a. Increased turnover and decreased ability to attract talent.
 - b. Burnout, mental and physical fatigue in those staff carrying out the responsibilities required to support existing technology in addition to the increased expectation of new technology, processes and skills.
 - c. Significant decrease in ability to develop new skills to support technology expectations.
 - d. Impact to employee gratification and pride in contributions and career development.
4. Fiscal Stewardship
- a. Increase in cost to maintain technology environment.
 - b. Increase human capital costs due to lack of or misalignment of technology enablement.
 - c. Increased costs for inefficient procurement processes.

RECOMMENDED PLAN AND NEXT STEPS

Transformation from traditional IT delivery to a Digital Service mindset and delivery does not occur overnight and will take several years to accomplish. With this in mind, we must begin immediately.

Theoretical potential is only harvestable if we can connect the points between capability and conceivable ways to use that capability. In order to make these connections, we must become more aware of capabilities, enhance our skills, change and expect more from technology and align our visions to deliver better outcomes. This will be accomplished by moving from historical IT to Burlington Digital Service, broadening the mandate and introducing a common vision through the creation of a digital strategy and roadmap, developing capabilities in human-centered design, agile delivery, software application rationalization, data management, technology platforming and enhancing third-party partnerships while continuing to support the vital infrastructure and application support services.

After careful consideration, the City's Leadership Team has identified a focus on our digital maturity as a critical priority in establishing a foundation of success in our ability to deliver on expectations of stakeholders and the needs of the organization. Cultural, skill development and increasing capacity occurs over time and requires a balanced approach. In response, the leadership team have developed a 4-year phased approach.

Some early activities have occurred to begin Burlington's digital journey. The vision and initial roadmap were developed and delivered in Q1 2022. In the Q2 2022, Strategy and Risk Team (SRT) supported the Enterprise Architecture leadership position to establish the Enterprise Architecture practice. SRT also supported the proposed organizational structure in principle moving towards a digital service environment acknowledging it is an iterative approach and outlined in report CM-24-22. The 2023 changes would include a department name change reflective of the vision beyond 'traditional' Information Technology to Burlington Digital Service (BDS), a change to two position titles and the creation of six new positions (Director of IT, Director of Human Centered Design, Interaction Designer, Product Manager, Digital Service Owner and User Researcher).

Beyond the resource request as part of the budget process, the transformation to Burlington Digital Service requires the development of a full strategy for a phased approach to implementation. The strategy is to be inclusive of all impacts to process, people and technologies including corporate support functions requiring resources to support the front-line and back-office positions (i.e. HR, Legal, Finance, Corporate Strategy, Corporate Communications & Engagement, etc.). Building on the initial roadmap, the strategy will contain a detailed roadmap, identify further experiments and reaffirm the talent plan and vision proposed over the course of the 4 years. This strategy will be developed in partnership with a third-party and completed in Q1 2023.

The overall objective is enablement, exceptional delivery, speed to value, security, cost control and improved talent management.

Options Considered

Status Quo

Remaining in the current state is always an option. In this case, this would result in degrading services from what is provided today as talent challenges, increasing costs and a complex technology landscape remain. Status quo would also require increased investment in resources as the stability of the existing environment is lean. In this scenario, there is no capacity to respond to emerging needs or policy challenges.

Use of Consultants Exclusively

There are numerous professional services organizations that provide leadership in digital delivery. While utilizing these services to offset peaks of demand and education of our team is advised, using exclusively would significantly increase costs and organizational knowledge loss. Efficiencies and responsiveness would also be impacted minimizing the impact to reducing the complex environment, costs and ability of the team to support.

Financial Matters:

Total Financial Impact

Transforming our design and delivery capabilities, adopting a digital strategy and evolving the ITS Department will require a phased investment of approximately \$2,661,734 over four years. The values include salary and benefits reflected in 2023 values.

Phase 1 resourcing requests will be brought forward as part of the 2023 budget with future phases included in subsequent years. The 2023 budget request is approximately \$952,392.

In addition, the investment is required to meet other departments revenue and savings objectives as technology enablement are key to their ability to meet these targets. Without investment in Burlington Digital Service, the risk of not achieving these targets is high.

Source of Funding

Operating budget.

Other Resource Impacts

As part of the evolution in our design and delivery of technology-enabled human-centered solutions, we are also embracing a true matrix-based organization over a siloed approach. In doing so, fusion teams made up of members from areas of expertise throughout the organization will collaboratively deliver solutions instead of one department being solely responsible. The benefits are discussed in the background and discussion section above. Other resource impacts reflect the change in direction and collaboration. All impacts are included in the funding request and are not in addition to.

Corporate Strategy Team

Corporate Strategy Team and BDS services are some of the most complementary between departments. Specifically, the expertise in continuous improvement and business performance is essential in the focus on people and process early in the design process. An additional FTE position directly related to the transformation of our delivery of services was identified, a Business Improvement Specialist. This position is part of Phase 1 in 2023.

Human Resources (HR)

While additional HR FTE positions directly related to the evolution of Information Technology were not identified, the lack of resources in HR has made it difficult to perform talent management including attraction and retention. Hiring new FTE positions will add pressure to HR operations both in the recruitment and performance management areas.

Legal Services (LS)

As the organization has transitioned to Cloud-based solutions and large platform solutions, the complexity and number of contracts has increased. In addition, technology contracts are unique in their composition and terms. In consultation with LS, it has been determined that additional capacity and specialty is required to support BDS, a Solicitor – General Litigation, Municipal Law, Insurance Practice. This position is part of Phase 2 in 2024.

Finance

Similar to LS, the frequency of procurement of technology and services has increased in the number and complexity. In consultation with Finance, an additional FTE was identified to address capacity challenges and provide a resource specialized in technology solutions, a Senior Buyer. This position is part of Phase 2 in 2024.

Climate Implications

Investing in our digital strategy aids the environmental goals outlined in the City's Strategic Plan. This includes efficiency in utilization of technology assets, partnerships with third parties supporting sustainability to decrease the impact of computing on the environment (i.e. reduction in data centre electricity usage), and artificial intelligence to improve routing and enforcement and using our data assets to inform policy decision making.

Engagement Matters:

The concept of the transforming ITS to Burlington Digital Service was discussed with the Strategy & Risk Team, the Burlington Leadership Team and some members of Council.

Conclusion:

This report provides Council with a recommended plan and further details to Designing and Evolving our Organization CM-24-22 report for consideration in advance of 2023 budget deliberations. The recommended investment will result in a human-centered, scalable, agile, proactive, predictive and timely information technology enablement model for Burlington that aligns with the City's objectives and expectations of the community we serve.

Respectfully submitted,

Chad MacDonald

Chief Information Officer

905.335.7600 x.7776

Appendices:

- A. Draft Future State Burlington Digital Service Organizational Chart

Report Approval:

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.