Corporate IT and Digital Strategic Plan

Final Report

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Version History

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Figure 1: Version History

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Executive Summary

1.0 Executive Summary

The Executive Summary is provided under separate cover.

2.0 The Digital Opportunity

It is undeniable that over the last decade and a half, the world has become increasingly digital and this past year has only accelerated this growth. In response to the pandemic shut-downs and work from home protocols, there have been disruptive changes to all business models forcing many to embrace technology to simply maintain operations as businesses were forced to close their physical locations.

Government has been no different.

Technology was shifted into being a critical function and IT departments were no longer a supporting back-office service but they became essential to new service delivery methods.

Even before the Covid-19 pandemic, demands on government were growing and as government worked to identify efficiencies, they looked to technology for solutions. It was clearly more important than ever to maximize the benefits made from digital investments while balancing the needs of the customer.

In response, municipalities across Canada have been rapidly introducing digital services to streamline service delivery and make customer experiences better. In Calgary, citizens can easily login to the City's website to report problems online, proactively getting updates until their request is fulfilled. In Barrie, customers can manage their water billing account and check their water usage via an online portal. In Mississauga, customers can manage their development applications, building and sign permits – completely online – including making payments, handling drawings and application revisions.

People use digital technologies to connect with family across the globe, to bank, shop and order food, to renew their health card, buy a fishing license, to get a passport and file their taxes – at any time, from anywhere.

The latest information from Statistics Canada shows that over 92% of Canadians are online, 76% have smartphones and over 88% of Canadians bank online – illustrating starkly just how pervasive technology has become.

This past year, while dealing with the pandemic, municipalities had to re-think their current operating models and address new paradigms of service delivery. We saw greater agility and responsiveness than ever before as organizations radically changed their mandates and operations. Municipalities embraced technology with innovative thinking by actually applying systems thinking to new processes. We also saw more engagement of a variety of stakeholders and solutions quickly put into place that provided greater opportunities for involvement. Hopefully, this means a new normal because it really doesn't seem realistic to go back to the way it was before.

One of the central concepts that has powered the internet revolution and positioned the internet as the world's primary customer service platform, is **self-service**. Today, customers can use the internet to answer questions, to book a flight or tickets to a show, to file taxes, to request a new driving license or apply for a passport. The expectation is that customers should also be able to similarly access and use Whitby's many services.

By applying digital techniques and technologies, there is the opportunity to transform customer-facing and internal processes. The ability to reduce how often customers must come into Town offices to make payments, to sign forms, to drop off drawings or to pick up a permit. Staff can proactively notify customers of what is happening with their requests, rather than customers having to contact the Town to check up on progress or status.

Not only does delivery via the internet offer the ability for customers to self-serve and create capacity in the Town, but optimally designed digital services are significantly cheaper to run as the table below illustrates.

Channel	Cost per Transaction (ServiceCanada)
Web / Online	$0.10
Phone	$4.00
Face-to-Face	$6.50

The business case for moving services online is strong.

What's more, the expectations of customers are also the expectations of staff who, just like customers, want to use digital technologies to help them be more productive and efficient.

The Town's Corporate Strategic Plan identifies several priorities that are supported by this goal. Very literally, by "leveraging technology and information to modernize our business practices," as well as by "designing service delivery around customer needs and modernizing" and "improving customer interaction tools."

Customers also want to ensure that their data and privacy are protected. The number of security breaches has been exponentially increasing over the past decade and cyber-attacks are now being targeted against municipalities directly, so a move to more online services also requires a digital security by design (DSbD) approach. Security considerations should be included at the onset of any digital transformation project in order to ensure that the planned service is difficult to compromise and disrupt.

This requires active management by considering security as a factor in every design and implementation choice as well as comprehending the risks associated with certain design and infrastructure choices. Given the technical nature of these choices, it is important that digital services are planned and designed by way of collaborative partnerships between service owners (departments) and technology experts (Technology and Innovation Services - TIS).

Internally, there are various opportunities to automate and streamline high-volume back-office processes – such as payroll, expense management and invoicing processes – to improve collaboration on projects and to enable mobile and field workers. Modernization in the back-office and with field service tools is also an essential support for fully digitizing front-office services.

A **digitized platform** must be designed and developed with consideration for the front- and back-office as well the core systems, as illustrated in the diagram below, where customers, suppliers, partners, customer service staff, back-office staff, field staff and Council all feed into and access the core systems that support the front- and back-office processes.

Proper coordination and integration of these components requires planning to ensure that interdependencies are sequenced accordingly. The full digitization of processes provides the foundation for becoming an efficient organization that can deliver great services and reduce (if not eliminate) time intensive tasks such as searching through physical records or transposing information from one system to another.

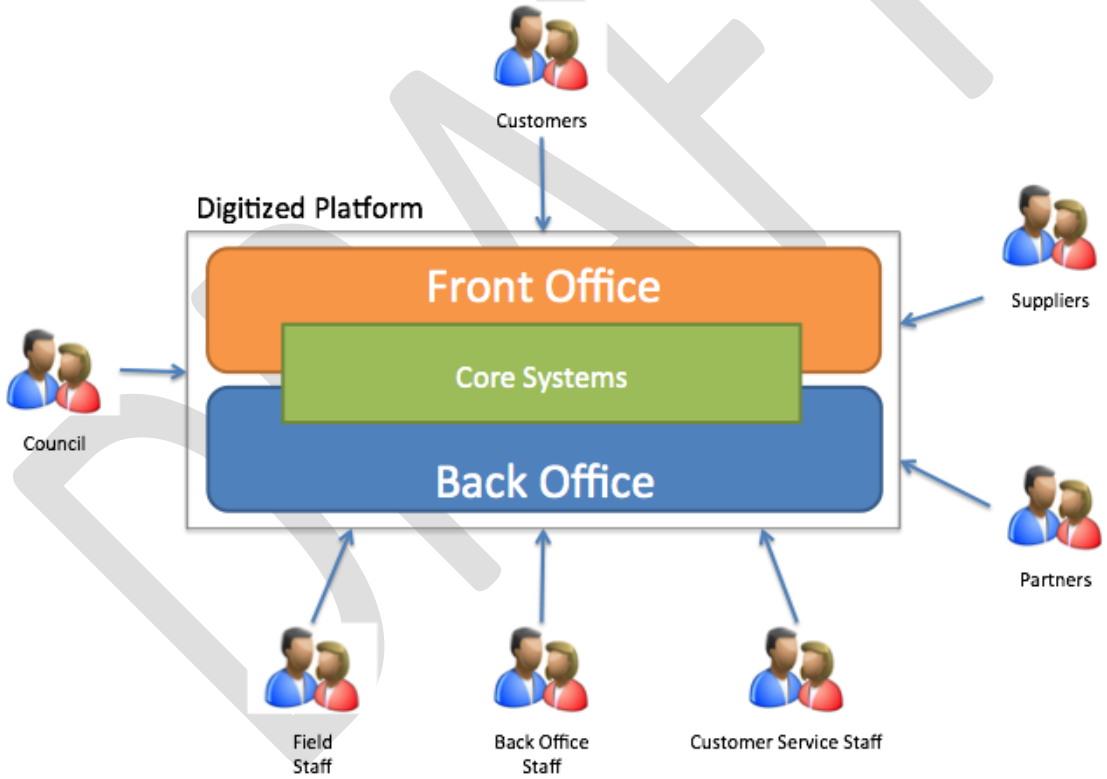

Figure 2: Digitized Platform

So, the opportunity is to take advantage of the internet and smartphone era and the associated technologies available to improve service delivery and internal processes – to move to a self-serve, digitally-powered service model that uses data to support continuous improvement.

In doing so, it becomes possible to:

- Offer more convenient services that meet customer expectations.
- Build customer trust.
- Effectively scale services as the community continues to grow.
- Increase front- and back-office and mobile worker efficiency and productivity, freeing staff for higher value-add work.
- Improve recruitment and retention (by providing a flexible, modern workplace).
- Improve the stewardship of the Town asset portfolio.
- Reduce the overall cost of service delivery.

2.1. Learning from Covid

In the response to Covid-19, staff worked with conviction, urgency and a singularity of purpose, focusing resources to solve the problems at hand. This work amplified what was already known – digital is the new normal. It's what customers and staff expect but in times of crisis, digital is *necessary* to support operations and service delivery.

Staff have had to learn rapidly how to deliver services in new ways, to move from an office-based workforce to a substantial portion of the workforce working from home. This work wasn't easy, nor was it perfect. Many of the mission critical "people and money" processes were far too rooted in manual workflows to have been digitized during the pandemic but there was and still is commitment to undertake the hard work necessary to remediate these areas and modernize capabilities moving forward. Learning from these experiences and folding them into the "modus operandi" going forward is the opportunity.

Town staff have shown that they *can* deliver digitally and *can* move at a pace and quickly adapt to change when required. But working in this way is new and challenging. There is no digital blueprint in place to help guide efforts in times of crisis and change; no vision or standards to fall back on to ensure that everyone is working toward the same sort of digital future. Vision and principles must be in place as well as an organizational commitment made to follow them.

Currently, the Town operates under a centralized IT environment, where TIS provides services to all departments across the organization. This model is suitable for the Town's size and structure and also provides a number of benefits that will be critical in support of modernizing digital services – most notably, developing and adhering to standards (e.g. technology architecture, service patterns, UX etc.). Centralization, in this case, makes technology work more efficiently and leads to more consistency in terms of the final products.

There are great prospects to move quickly and transform services but it will require ownership of the current state and a bold pledge to improve on it. Roles and responsibilities must be clearly defined for real transformation to occur. Service owners (departments) must come to terms with the “new normal”, in that digital services are simply an extension of the services they already provide. Digital holds amazing potential, but it must be guided by those that know their customers the best. There needs to be a clear commitment made, not only to provide digital services, but to ensure they are continually improved to the meet the needs of customers.

This Digital Strategy will build on the Covid experience and focus attention, resources and investment in a few critical areas.

Current State Summary and Challenge

3.0 Current State Summary and Challenge

In order to define the response to the digital opportunity, it is important to first understand the current state of technology and digital adoption.

Over the past few months, the Perry Group team has worked its way across the organization to understand the current state. The consulting team engaged with the IT Governance Committee (T3), the Senior Leadership Team and all departments, the TIS Department staff and also had discussions with the Mayor and Council.

3.1. Progress Against 2017's CITSP

Last year, Perry Group conducted a "Health Check" of Whitby's 2017 IT Strategic Plan. The objective was to determine overall progress against the various recommendations made in the CITSP. It also allowed us to chart the progress against the Municipal Technology Model (MTM) that was used in 2017 to assess the state of the Town's technology architecture (further detail can be found in Digital Maturity Model).

The Health Check revealed that:

- Significant progress has been made in building capacity and capability within the TIS Team – staff team numbers are healthy.
- Significant progress has been made with respect to modernizing and revitalizing the Town's technology foundations (infrastructure, governance, policies, IT ops) and this was showcased during the Covid pandemic as the Town was able to quickly pivot to remote working.
- While good progress has been made in several areas in the Business Solutions Layer (including Amanda and Fleet) progress has been slower due to project complexities on large scale and critical business system implementation projects particularly the Enterprise Resource Planning (ERP), Work and Asset Management (WAM) and Enterprise Content Management (ECM) projects.
- Customer-facing initiatives (online payments, bookings, registration, etc.) need attention and should be a focus following the Town's website re-design project.
- Centralized IT continues to be the most effective use of technology resources for the Town in order to ensure corporate priorities are adequately resourced.

More broadly speaking we found that:

- Communications and collaboration between IT, T3 and business areas could be improved.

- The IT Governance model has not reached the anticipated levels of effectiveness and is not well aligned with corporate work planning.
- Some introduction of processes recommended by the CITSP has over-encumbered the delivery of some technology projects, slowing them down too much and straining relationships between TIS and the business units.
- Change management is needed to strengthen partnerships and ensure goal alignment across the Town with respect to technology projects. Further review (perhaps through BPO work) of the evolving corporate business and work planning model and approach would be beneficial to ensure that technology projects are adequately resourced – both by TIS and Departmental staff and adhere to corporate digital standards.
- Covid helped push the Town to embrace more agility in working and has helped to highlight the importance of digital and the opportunities that it brings.

3.2. Municipal Technology Model (MTM) 2017-2022

The Perry Group MTM – from previous strategy work and in the more recent assessment – was used to help understand the current technology environment. The following MTM diagram was developed along with the 2017 CITSP.

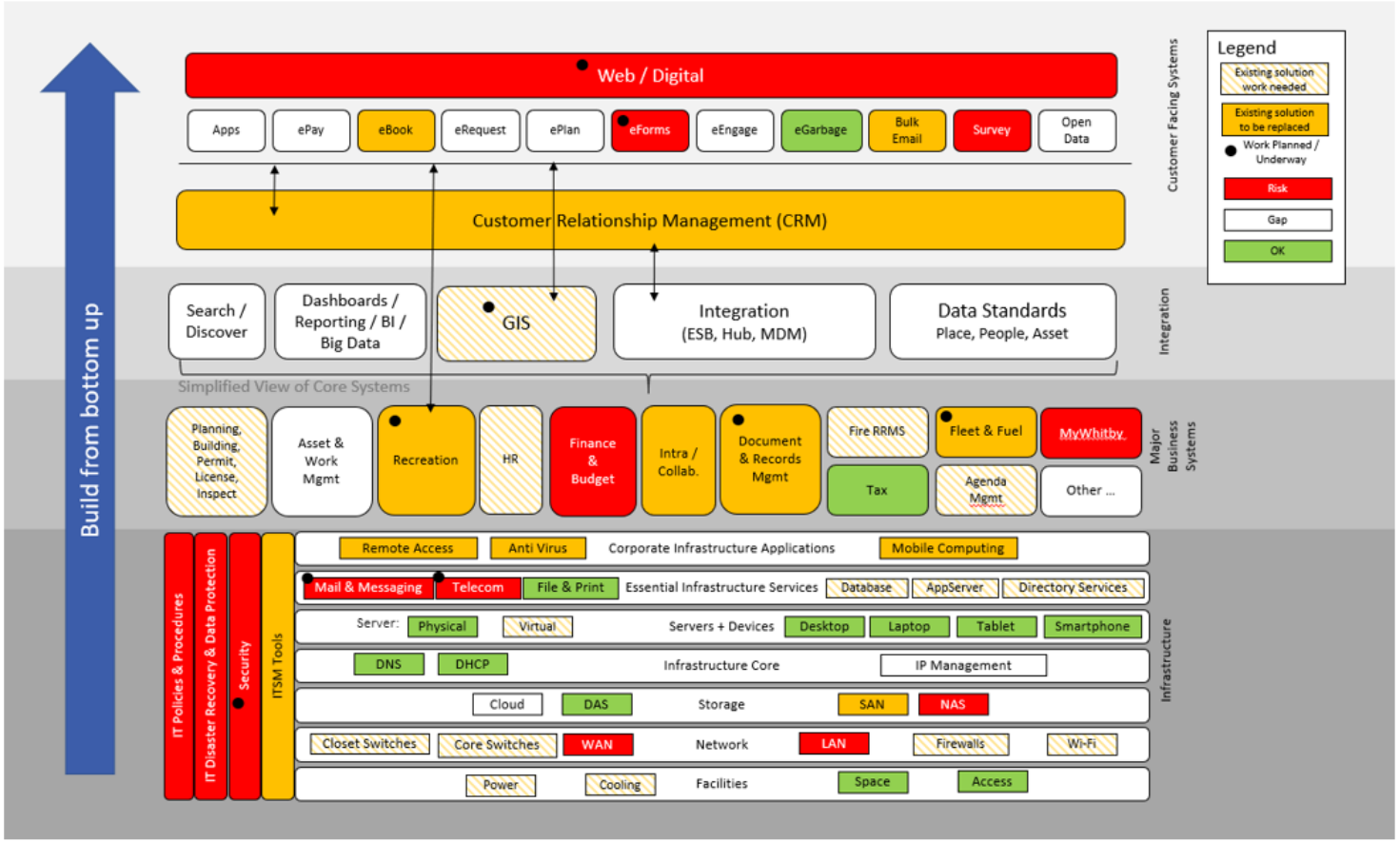

Figure 3: 2017 Town of Whitby MTM

The diagram below provides an updated MTM view on the current situation.

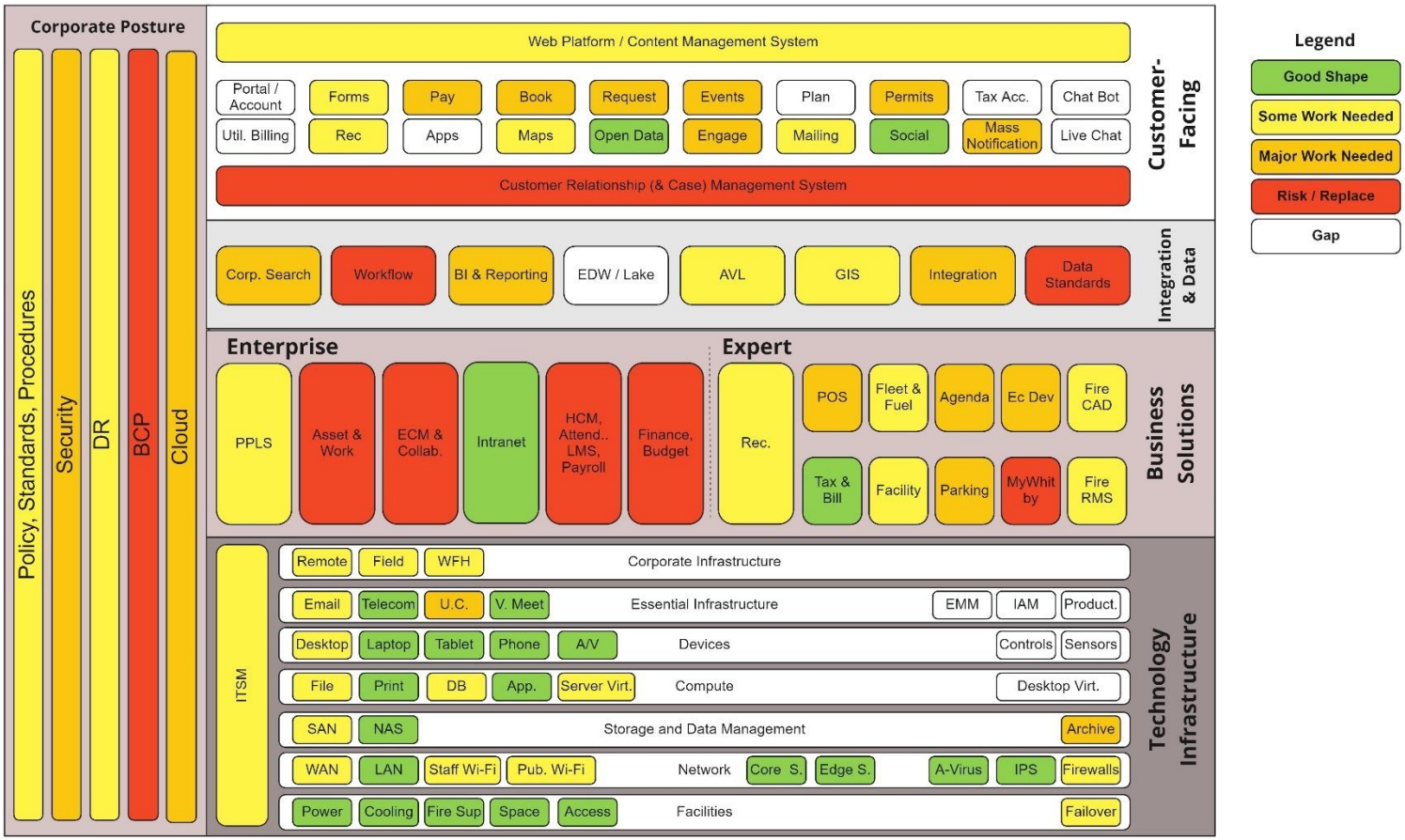

Figure 4: 2021 Town of Whitby MTM

The key messages to take away from these assessments are:

a. Improvements that have been achieved in the Infrastructure Layer are significant. This fact is highlighted as part of the 2020 CITSP Assessment Summary Report (“Health Check”). Since that Report, modernization of the Town’s infrastructure technology environment has continued through various net new implementations and configurations of existing tools (e.g., Geotab AVL, 2FA, new core and firewall, Clearpass, etc.). This is considerable progress since 2017 and has established a solid technology foundation for the Town.

It is important to clarify, however, there is always work to be done to continuously improve, upgrade and enhance the technology architecture environment. A lifecycle management approach to technology infrastructure is the same for roads, facilities and other such assets. If continued investment and planning stops, the strong foundation in place today will begin to break down and lead to a myriad of critical issues (e.g., connectivity/access downtime, security, corruption/loss of data, etc.).

b. The Town's core corporate systems (ERP, Work and Asset Management, Customer Relationship Management (CRM), ECM) show as big risks with aging solutions or key gaps – significant work is needed in these areas. These solutions were sequenced to occur in the latter stages of the CITSP and Covid did have an impact on forward progress. Project Wisdom has moved the ERP project forward through requirements gathering and by retaining external support to validate requirements in support of procuring a solution. The Town's Customer Service Strategy – as well as recommendations made within this Report – also suggest that CRM is another key priority. Work and Asset Management as well as ECM are current gaps within the organization.

c. Opportunities exist in the data space, particularly around data governance, data platform and data analytics.

d. The Town's current "CRM", Cityworks, is unsuited to the task and the Customer Service Strategy has recommended the implementation of a new CRM system and portal. There are numerous opportunities to deliver new digital services and the Town has many of the tools that can enable the delivery of new digital services quickly.

e. Additional work in the policy and governance space is needed, particularly around Cloud, disaster recovery (DR) and business continuity (BCP) and security.

3.2.1. Importance of Staying the Course / Business Solutions

The 2017 CITSP flagged that "The Town must plan for a number of major business systems initiatives that will support the digitization of business processes in preparation for digital service delivery." Specifically mentioning:

1. **New ERP (Finance and HR System) – 2019**

   Project Wisdom has created forward momentum with respect to ERP by working across the organization to document requirements and is currently in the process of retaining external support to both select and implement a solution. A change management plan has been developed to help support engagement throughout the project which is critical to success.

2. **Enhancements to Amanda (Planning, Permitting, Licensing Systems) – 2019 / 2020**

   Some good progress has been achieved on business solutions, particularly with respect to upgrading and expanding the use of Amanda.

3. **New Work and Asset Management Systems – 2020**

   Cityworks could be upgraded and expanded to, more broadly, support Work and Asset Management, however, this requires corporate support and careful sequencing with other priorities.

4. **Enterprise Content Management – 2021**

   The Box pilot undertaken by the Clerk's department was useful in learning around ECM and further pilots should continue in this area leading up to consideration.

5. **Customer Relationship Management System – 2022**

   The Customer Service Strategy and recommendations made within this Report identify CRM as a huge opportunity area that will need to be tackled if digital transformation is to take root.

For various reasons, notwithstanding the onset of the pandemic, many at the Town perceive that progress on business systems has not been moving fast enough. Frustrations at the pace of delivery are understandable – the ERP project remains one of the Town's most high-profile technology project in years. It is expected to build the foundation for many internal digital self-services that modernize staff experiences around time and attendance, Finance and HR functions. It is critical that the Town keep moving this project forward. To do so, there must be open communication to ensure that **all** staff are ready to for the ERP solution. A technology project of this scale will be disruptive, but a focus on active communication and change management at the onset of the project will help mitigate this.

3.2.2. Municipal Online Services Assessment

There is a strong focus in the Town's Strategic Plan and with the recently approved Customer Service Strategy, on delivering high quality customer service and a desire to deliver even more.

The "The Municipal Online Services Assessment" (MOSA) identifies 44 different customer experiences that modern municipal organizations typically deliver via their websites and online services. This analysis includes an external scan of the Town of Whitby's website with a focus on being able to access/complete "good services" (refer to Building a Technology Architecture to Support Digital First for more details).

Easy to use website	Partial	Building permit application	N
Mobile website	Y	Book a building inspection	N
Personalization	N	Submit digital plans	N
Single Account	Partial	Submit development application	N
Submit a service request	N	Track development application	N
Track a service request	N	Employment search and applications	Y
City App	N	Sign permits	N
Customer knowledge base	N	Fire / Fireworks permit	N
Online chat with CSR	N	Pet licence	Y
Tweet for help	N	Theatre Tickets	N/A
Online bid management	Y	Road closures	Partial
Pay Taxes Online	N	Snow clearance status	Y
Pay an invoice	N	Events calendar	Y
Parking / infraction ticket payment	Y	Filming permits	N
Parking permits / exemptions	Y	Business licences	N
Recreation program online booking	Y	Council / committee web streaming	Y
Rent a facility	N	Online Agendas / Minutes	Y
eForms	Y	Grants programs	N
Open Data	Y	Council delegation request	N
Transit planning	N/A	Site suitability / selector / vacant land	N
Tax account management	N	Marriage Licence	Y
Tax certificates	N	Digital Signatures	N

Figure 5: 2022 Town of Whitby MOSA Results

It is worth noting that the majority of services the Town currently does *not* offer falls into these three areas:

- Service request processing and handling.
- Payments, and
- Permits, development and licenses.

This is a pointer to the areas of focus in future and helps reinforce several key observations on Whitby's current state:

- Self-service is a key goal expressed within the Customer Service Strategy but is not being delivered.
- Repeatable service patterns are absent – when digital solutions are created, it is from scratch nearly every time.
- Staff don't know what they don't know. More digitization could be occurring with improved collaboration, communication and leadership.
- Staff don't fully understand what the highest customer needs are or which services to digitize first.
- Digital payments are clearly high on this list and the ERP project will work to centralize and integrate the Town's payment delivery platform of the future. In the interim, however, criteria and a solution has been developed to support online payments today. All new interim online payment options / solutions should refer to this criteria to ensure consistency, cost efficiency and user design considerations across the multiple services used. This will also help make it easier to transition to a more centralized payments platform if the decision is made to do so in the future.
- New services are dependent on back-office processes and field service technology, and digitization which, in many cases, are not present or not fully leveraged.

3.3. Detailed Review of Two Processes

Process review work is a critical first task in the digitization and transformation of any service. Reviewing processes identifies any gaps or opportunities to modernize the process to better meet the customer's needs and expectations *before* technology solutions are designed and implemented.

The Perry Group consulting team worked with the Town to select and conduct a service and business process review of two Town processes using the Perry Group service design methodology.

This was intended to introduce the service design methodology to Town staff and to help the consulting team better understand the Town's current technology state using a selection of representative services.

Building Permits and the Members of Council (MoC) Service Request Management business processes were reviewed. Full details, including recommendations of both assessments, can be found at BPO Building Permits and BPO MoC Request Management.

In summary, the observations were:

- Customers cannot submit, check status, receive updates or make a payment online in a consistent manner for either process.
- In both processes, information is tracked in multiple systems and thus staff must duplicate effort in inputting data in more than one system.
- Alongside the electronic system, a parallel paper-based process is also maintained by staff where copies of files, documents and drawings are maintained in both electronic and paper formats. This creates a considerable amount of duplication of effort and data.
- Key functions, such as fee calculations often happen outside of the main system, meaning more duplication of data, a lack of auditability for calculations and potential for transposition and human errors.
- Although the core process is managed in a system, neither system fully meets the requirements and various bugs and issues prevent full use of key capabilities.
- Historic data continues to be stored in paper files, requiring staff to access two sources to verify and provide complete answers.
- Various processes in the Building department continue to rely on paper copies of documents and drawings, physical engineering stamps and physical or wet signatures, limiting digital adoption or transition.
- The Building Permitting process is available to field staff using mobile technologies – which is positive – though not all staff use the technologies in real-time.
- The MoC process is not available on mobile devices.
- Some back-office processes are not managed electronically and so there is no insight into them to front-office staff.
- Due to lack of integration between the main tracking system and back-office systems, the MoC Request process does not provide easy access to a clear unified status of a service request.
- The services lack meaningful service levels, enforcement of any service levels and reporting.

These issues are representative of issues across Town processes – partially digitized processes, duplicate data entry in multiple systems, lack of automation and parallel or shadow systems are commonplace. Collectively, these issues add considerable drag and reduced productivity across the Town.

3.4. Digital Maturity Assessment

The Digital Maturity Assessment helps a municipality identify what its current level of digital maturity is. It can easily be used as a benchmark for tracking, measuring and reporting on progress against the defined targeted levels of maturity.

The 5 levels of digital maturity are:

- Level 1 – Digital Resister
- Level 2 – Early Experimenter
- Level 3 – Digitally Accelerating
- Level 4 – Digitally Transforming
- Level 5 – Digital Leader

Whitby fits the profile of an **Early Experimenter**. An Early Experimenter finds that there are some digital solutions in place, but these are somewhat random, being explored and implemented due only to interest and willingness. There are core business solutions implemented but these are not being fully leveraged, leaving some modules that may address digital solutions not implemented.

Typically, the team thinks about digital servicing but it is too busy maintaining to be able to consider thoughtful new ideas. More detail is available at Digital Maturity Model.

Figure 6: 2022 Town of Whitby Digital Maturity Assessment

The Current State Assessment and Digital Maturity Assessment reinforce that there is much opportunity ahead. To move the maturity and corporately advance digital capabilities, the Maturity Model suggests there is the need to:

- Build strong digital governance.
- Consistently use digital standards and principles.
- Invest in corporate digital literacy.
- Digitize high-volume internal and customer-facing processes.
- Move from a model of IT as supplier to a strong business-IT partnership model.
- Incorporate Good Service Standards into agile and design-thinking approaches to product and project delivery.
- Invest in architecture and continued modernization of core platforms.
- Embrace Cloud computing.

Going forward, clarity surrounding digital service expectations is necessary – for staff and service owners alike.

For digital maturity to take place, corporate objectives need to be clearly established and well understood across the organization. Shifting priorities with respect to corporate digital and technology projects have a ripple effect that can derail forward momentum and create challenges in allocating resources across the organization.

The digital governance model needs to help deal with key decisions and help the organization move faster and the policy framework needs to set things up to become more flexible and agile and ready to take advantage of new opportunities.

3.5. Grasping the Opportunity

The world has changed a lot these past couple of years and government services are no different.

The Town of Whitby has adapted in order to deliver services and to keep things moving forward, all while keeping staff and residents safe. This is because staff and leaders were able to pivot quickly, to deliver services by embracing digital solutions and to shift priorities to meet changing demands and legislation.

Now is the time to decide if the Town wants to go back to the old ways or to grasp the opportunity to continue to innovate and meet the ever-changing demands and needs of customers. Digital transformation is key to moving forward. Successfully shifting to a new operating model, a new decision process, new security standards as well as new digital standards requires more than just deciding so. It requires a different way of thinking, a different way of priority-setting, a commitment to change and a commitment to protect data and private information as well as additional investment in technologies and staff to support those initiatives.

Focusing on critical elements while still identifying quick wins that will help to mobilize and motivate staff to deliver new solutions quickly and effectively is the best way to achieve an overall transformative plan.

Answering these questions sets the stage for transformation:

- How will you make the decision on what projects need to be completed?
  How will you resource these projects to set them up for success?
  What are the data and security concerns that need to be addressed?
  Will these solutions achieve your vision and corporate strategies?
- How will you make sure staff are able to collaborate and build on each other's strengths, leveraging knowledge and data that is captured in the department systems?
  Are processes in place to support staff to make the right decisions?
- Do you have the skills, knowledge and experience available to move these initiatives forward?
  Do you have sufficient internal technology resources?
  Are you recruiting the right talent for the future?
  Are you providing the right tools to enable staff to achieve these goals?

For the Town of Whitby to fully grasp the digital opportunity**,** there is the need to address the following:

- Core business processes need to be digitized end-to-end from the foundation up using standardized, integrated business platforms and leveraging real-time workflows and approvals, digital signatures and payments (paper use must be reduced to a minimum).
- The mobile and non-office-based workforce needs to become more connected to the community through technologies that enable them to connect, communicate and operate from wherever they need to be.
- The organization needs to become more adept and efficient at managing data so that it can better leverage data as an asset rather than a by-product of work. When utilized efficiently, data can help inform decision-making, drive automation and optimize resource utilization.
- Utilize technologies to enable seamless and straightforward collaboration between teams and with partners.
- Equip leaders, managers and service owners with digital acumen. They need to be open to and understand how to use technology to drive process improvements and service transformation and to build a track record of delivering successful digital transformation.
- Develop a workforce that is tech savvy, digital and data literate; a workforce that has committed to a corporate Digital Vision and has access to the right tools and technologies to implement on it.
- Consider security when redesigning all new business processes; use security by design (DSbD) principles.

- Encourage service owners to proactively look out for opportunities to leverage technology to improve process and service and to commit to delivering with internal and external partners – including customers themselves.

In the early months of the pandemic, urgency and speed were drivers for decision-making. This proved that solutions can be quickly implemented and that solutions did not need to be perfect from the start – an iterative approach provided an even better solution in the end.

This type of thinking needs to be embedded in the new workplace, embracing digital solutions as the means to providing better services.

Digital First

4.0 Digital First

For this Strategy to have a transformative effect, it is important to set out a goal, a mission, a north star – something that the Town can target and consistently and doggedly work toward.

4.1. "**Consistent**, Optimized and Positive Customer Service Experiences"

The Town's Corporate Strategic Plan (CSP) states "we will provide a consistent, optimized and positive customer service experience".

In 2021, for many of the Town's customers, optimized customer service is digital. The CSP sets out five characteristics that must be in place to digitize:

- Design secure service delivery around customer needs.
- Define clear service levels.
- Modernize and improve customer interaction tools.
- Provide consistent customer service training for all staff.
- Measure results in pursuit of ongoing improvements to the customer service experience.

In addition, the CSP notes the importance of providing services in the most cost-effective and timely manner possible.

These are important values and set a great foundation for digital service delivery, pointing to designing with and for customers, using modern digital tools to deliver services and measuring outcomes.

4.2. Customer Service Strategy

The Customer Service Strategy flags gaps in technology – particularly a lack of a CRM solution and online services, an over-reliance on PDF forms and a lack of online payment options as key inhibitors to meeting the objectives laid out in the CSP.

It recommends a set of specific technology/digital initiatives to enhance customer service at the Town.

- Design service around customer needs.
- Implement a CRM and a customer portal to better manage customer service processes.
- Integrate the CRM with back-office systems.
- Re-design customer service processes.

- Define the payments the Town will take.
- Implement a knowledge base for all staff.

The Digital Strategy drills into most of these concepts in additional detail in later sections of this Report.

4.3. Becoming a Digital First Organization

The Digital Strategy builds on the concepts set forth in the CSP and the Customer Service Strategy setting a goal (or a mission) for the Town to become a **Digital First** organization.

Thinking Digital First can be the guiding light as mentioned in the opening of this section – and it's important to see it pass into the vocabulary at the Town, to almost become a mantra – "*we are designing this service to be Digital First*."

A Digital First organization is one that is built for the internet and smartphone era – one that prioritizes digital delivery as its primary customer service platform.

So, in practice, what does it mean to be Digital First?

Digital First means to re-design services with digital at the centre of thinking about how to meet customer needs and how to support staff in their delivery of those services.

It also means to design, as identified in the CSP, with *customers* at the centre of all thinking, that is, actively consulting them and involving them in the design and testing of services, seeking feedback and making improvements based on their input.

A distinction is to not layer digital onto an existing process or tack digital onto the end of a service design process (*digital last*) – this will not achieve the outcomes or improvements being sought.

Instead, take the opportunity to design and re-design services from the ground up with digital delivery and customers in mind. Secure digital should be a core part of the service and how it is delivered and so must be considered at the ideation, conception and design stages – not as an adjunct, an after-thought, or as an add-on at the end.

The aspiration with Digital First is that the digital channel becomes the de facto standard for service delivery. As such, Digital First explicitly declares that it is *preferred* to deliver services via digital channels where suitable[1] and that service is designed for the digital channel first and not vice versa.

[1] It is recognized that there are services that require physical presence – e.g., a drop off at the recycling centre – and many others that cannot be replaced by digital experiences. But each of these experiences can be enhanced and augmented by digital aspects (e.g., booking a visit online, getting a text reminder of an upcoming appointment, finding the nearest recycling centre online that will accept what is being disposed, etc.).

Going forward, all services – internal and external, where possible and appropriate – should be designed and built Digital First – that is, for the internet age and smartphone era – not the paper and forms era.

4.4. Set Standards to Deliver Consistent Services

4.4.1. Defaults for Digital

In order to provide consistent services, as envisaged in the CSP, there is the need to set standards and provide guidance around what consistent practices should be embraced and adopted.

Thus, preferences need to be set out as an organization – and be clear to Council, leaders, managers, service owners and staff – that this is how the Town is going to deliver services from now on.

Some of the recommended preferences for the Town to state are:

- We prefer digital over paper.
- We prefer digital markup over hand-drawn annotations.
- We prefer eForms over PDF forms.
- We prefer data over documents and drawings.
- We prefer single sources of truth over duplication and re-keying of data.
- We prefer databases over spreadsheets.
- We prefer online payments over cheques and cash.
- We prefer auditable workflow over email and messages.
- We prefer real-time over post-facto tracking.
- We prefer that people who do the work, record the work over administrative staff entering data into systems after-the-fact.
- We prefer cheaper channels (web and phone) over more expensive ones (face-to-face and post).
- We prefer online interactions over coming into our offices to get stuff done.
- We don’t require a wet signature unless legally required.
- We prefer self-service over relying on someone else.

These defaults should provide useful guidance to service owners and project teams as they re-conceive and re-design services and implement new digital solutions.

If, as a service owner, a service is characterized opposite to the characteristics noted above (see Section 4.1) – this is a sign that the service is not where it should be and that changes are necessary to align with the current thinking about what good quality, consistent service delivery is.

4.4.2. Twelve Digital First Principles

To provide further guidance, the Strategy introduces the following set of Digital First principles.

These are principles that should be used to help focus efforts and align thinking across the organization as services are re-designed. The principles are intended to help service owners deliver on the customer promise made by the Customer Service Strategy and ensure a **Digital First** approach.

Be customer obsessed	Commit to understanding citizen needs and employ a citizen-centric mindset when building and improving digital services.
Self-service is the best service	Create efficiencies, save money and give users what they want by allowing them to help themselves. Avoid gatekeepers or controllers, where possible.
Utilize a design-thinking approach	Work collaboratively to empathize, experiment and test prototypes within real-world scenarios. Rinse and repeat.
Be open by default	Be transparent, share data and work in the open (blog, hold open demos and show-and-tell sessions) so others can better learn from and work with you.
Align technology in support of business process	Complete, end-to-end digital transformation requires process and technology to work together in support of people – think business outcomes first, not technology.
Employ a “one government” approach	Prioritize investments and co-produce across the organization in order to break down silos and solve complex problems that focus on the bigger picture.
Be platform and device agnostic	Design services independent of the hardware and software people use to access them.

Protect privacy and safeguard data	Use a “privacy by design” approach to ensure information management and security are considered up-front.
Build digital skills and capabilities	Become a more digital savvy organization by recruiting, training and empowering people with a digital mindset.
Show, don’t tell (with data)	Celebrate success and use data, visualizations and service demonstrations to tell stories and inspire as well as create new Communities of Practice.
Enable mobile, remote, flexible working	Permit customers and employees to be more efficient and generate greater value within a modern workplace by using digital tools.
Be agile and manage risk	Stay flexible so that people and projects can more easily evolve and adapt to change – manage risk, do not be averse to it.

Employing Digital First principles, especially at first, will require more time and consideration when looking at potential digitization projects. This investment of time, however, will allow for better services downstream and an improved user experience.

The need to move fast in response to customer expectations is understandable, however, glossing over these principles or cutting corners will only lead to half-measures which do not meet the needs of customers or the Town long-term.

It is important to plan and design services using these digital principles as it will greatly enhance the end product and build capacity within the organization to deliver on expectations more quickly each time.

4.4.3. Definition of What a Good Service Looks Like

Next, the Town should coalesce around what a “good digital service” looks like.

In her book, Good Services, Lou Downe (one of the original service designers from the Government Digital Service in the UK), identifies 15 factors that a “Good Service” will get right. These factors are included in her book and are shown below. Note that these ideas are to apply to *all* services – be they internal services provided to staff by HR or Finance, to partners via procurement and payments or to external customers.

15 Principles of Good Service Design – Lou Downe

1. Is easy to find.
2. Enables each user to complete the outcome they set out to.
3. Clearly explains its purpose.
4. Sets the expectations a user has of it.
5. Works in a way that's familiar.
6. Requires no prior knowledge to use.
7. Is agnostic of organizational structures.
8. Requires the minimum possible steps to complete.
9. Is consistent throughout.
10. Has no dead ends.
11. Is usable by everyone, equally.
12. Encourages the right behaviours from users and staff.
13. Responds to change quickly.
14. Clearly explains why a decision has been made.
15. Makes it easy to get human assistance.

These 15 factors equate to a **Good Service Standard** that the Town can use as a blueprint to follow when assessing existing services and designing new ones. Perry Group uses the Good Service Standard as part of the service review process and this methodology was applied to the two service design exercises that the team conducted on Building Permitting and MoC Requests. You can see further detail on this at Good Service Assessment.

Further detail with respect to the 15 principles, as well as an assessment tool, is available via Lou Downe's Good Services website.

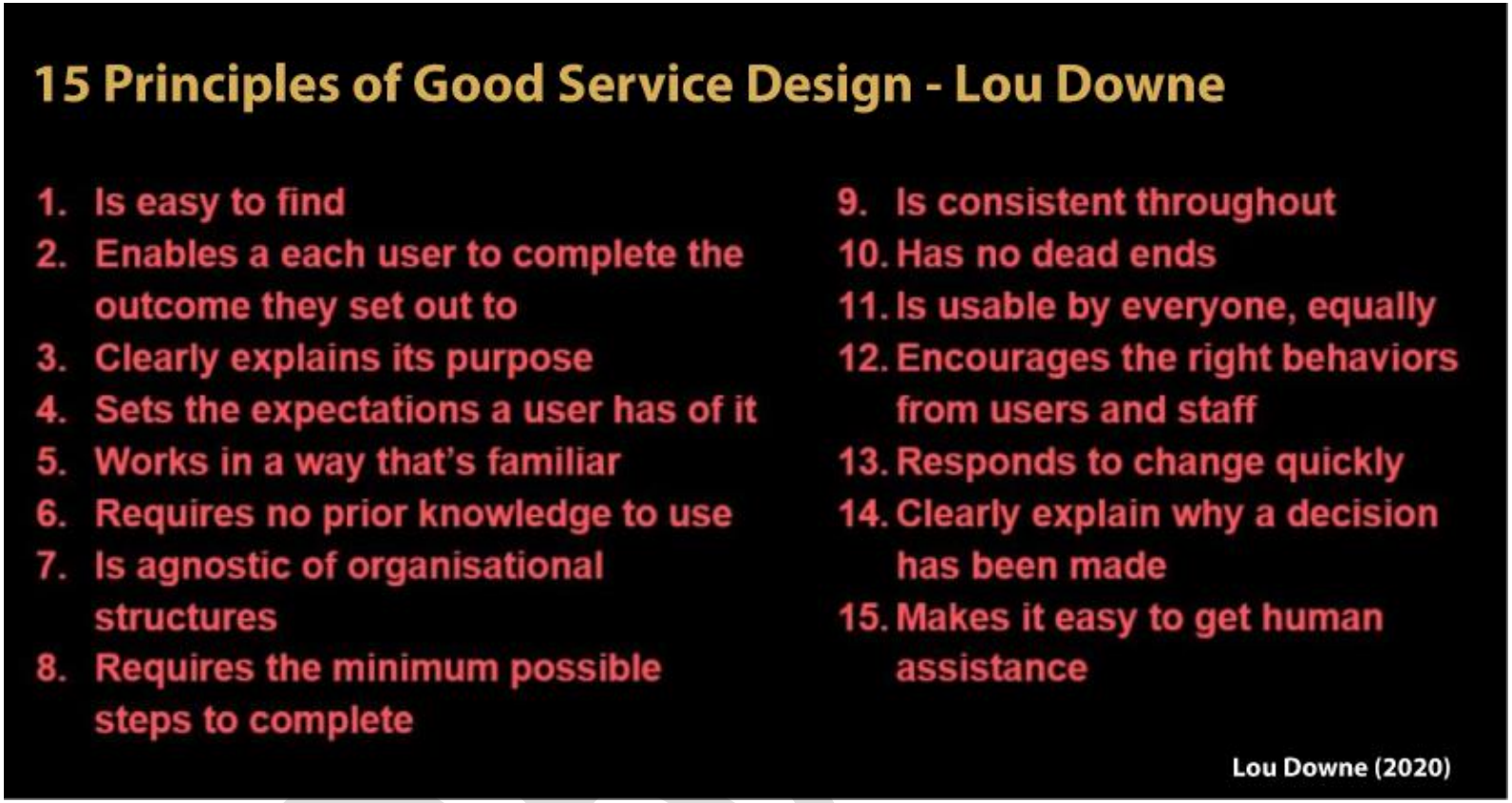

Figure 7: 15 Principles of Good Service (Lou Downe)

4.4.4. Build Reusable Patterns

Another approach to drive consistency and speed up the building of new digital services is to re-use components, technologies and processes, where possible.

To avoid building bespoke, unique solutions for each service and to avoid re-legislating decisions that have been made many times over before, certain components, or patterns can be re-used. In doing so, a toolkit can be established that will help to deploy new digital services more rapidly.

By breaking down services into their component parts, the Town can start to identify common interactions and tasks across stages of services – things like reporting a problem, applying for something or checking eligibility. Dedicated Digital Delivery Teams with a narrow focus on digitizing one process / service at a time can greatly enhance progress as well as gain

experience in applying service patterns to implement similar digital services. Further information about patterns can be found in the Adopt and Apply Digital Service Patterns section.

4.5. Implementing Digital Services?

With principles, guidelines and best practices understood, it is time to consider the next steps. How to go digital? The following vignette is an illustration of a future state, end-to-end digital service from the customer's perspective.

On her way to work, Mary witnesses a minor car accident. A stop sign has been knocked over. Mary pulls out her smartphone, takes a photo of the scene and uses the Town's online service to notify the Town of the problem.

The notification is received via the CRM solution, automatically categorized, geo-located and recorded in the Town's customer request management system, which is linked to the Town's and work management systems.

The work management system received the CRM request and automatically dispatches a request to a crew in the area who receives it on their field service tool while they are driving to their next scheduled worksite. As an emergency work order, they proceed to the site and erect a temporary stop sign. The field service workers update the ticket in the work management system, which then sends a close status to the CRM solution that a temporary solution is in place.

A day later, the sign crew visits the site and replaces the stop sign. The field works close off the work management ticket, which closes the service request, which automatically notifies Mary on her smartphone that the issue has been resolved and is asked to rate her satisfaction with her interaction with the Town. She is pleased with the service and rates it highly.

Refer to the Digitized Platform Workflow for a digital workflow schematic related to this illustration.

In the background, integrated technologies such as telecommmunications, networks, mobile devices and business systems (e.g., CRM, Work Management, GIS, Finance systems) are working in concert to allow customer service agents to offer simple access to services and for work crews in the field to be provided with the information (asset records, maps and drawings) they need to fulfill the work order.

Processes have been designed across departmental lines to make the end-to-end process simple for customers to interact with and easy for staff to administer.

4.5.1. First, Think Differently About Services and Service Delivery

Digital is not only about implementing new secure technologies. It is about adapting to the new normal and adopting the culture, methods and approaches of digital organizations. It is change; in fact, it is *massive* change. Change to operating models and to delivery modes, to ways that staff work, the type of work they do and the tools they use to do their work.

Think about how Uber has changed the taxi business – no need to call for a cab means no one is needed to answer the phone and dispatch cabs. This process has been automated. In the same way, the Town should re-design its services to be suited for digital delivery.

In many cases this will mean thinking differently – not digitizing how a process or service works now, but how a customer would like to interact with that service, and how staff could deliver that service better if they were unencumbered by the way things are today. This will require a completely new design of the service, from the ground up. Redefining business processes through an optimization exercise, helps to define what the service should look like, where there are gaps that must be addressed, where there are components that are no longer necessary and really, how to best meet the needs of the customer. This is referred to as Business Process Optimization (BPO).

As noted in the Customer Service Strategy, this is the work ahead and that work means challenging the status quo.

Some changes will be small, perhaps not requiring someone to visit Town Hall to make a payment, or not requiring a witnessed signature on a contract, or allowing a digital stamp on drawings, or perhaps it means allowing customers to print their own license or permit. Some changes will seem big, such as not distributing a recreation guide or garbage schedule to every residence and instead asking citizens to check the most up-to-date information online, or maybe allowing 3rd party contractors working on the Town's behalf to access our systems to record their work.

Business Analysts in TIS and subject matter experts in business units can work together on BPO and service design initiatives to re-think processes and services before digital teams get to work. Examples of BPO and the expected benefits can be found in Business Process Optimization – Building Permits and Business Process Optimization – MoC Request Management.

4.5.2. Next, Deliver!

The answer is to go digital, one service at a time by actively working on digital projects that – slowly but surely, service by service – move to a digital mode of delivery. In this case, the strategy is execution.

It is important to show, not tell, to prove the value of digital by implementing new digital services and then showcasing to others in the organization the benefits that have been achieved.

Are there any shortcuts? There are some (re-using technologies, service patterns and concepts, where possible) but at the heart, this is about designing services to be built for the digital age, unencumbered by historical restrictions and inhibitors and that's the work described in the section above. The Town wants to avoid creating future technical debt by developing new services that are costly to support, difficult to secure and require significant departmental resources to upgrade. It is critical that

proper consideration is given to the Digital First principles as well as the Good Service Standards. This will require more time to be spent at the onset of projects but will lead to better quality services that adequately safeguard data and require less "ongoing maintenance" (or replacement) over the long-term.

This is always hard work that requires leadership, dedicated, empowered multi-disciplinary teams, training and change management and reinforcement.

The diagram below provides a 9-step approach to the implementation of new digital services:

1. Pick a service based on prioritization guidelines.
2. Conduct an as-is service and process review and user research.
3. Design the new to-be service and process to be Digital First using the Digital First principles and Good Services Design.
4. Re-use existing tools to build a Minimum Viable Product (MVP).
5. Build re-usable patterns, wherever possible.
6. Deploy as beta after testing with the service owner and seeking customer feedback.
7. Seek user/customer feedback using a structured digital feedback form.
8. Iteratively enhance based on feedback.
9. Promote the new digital service within the service area.

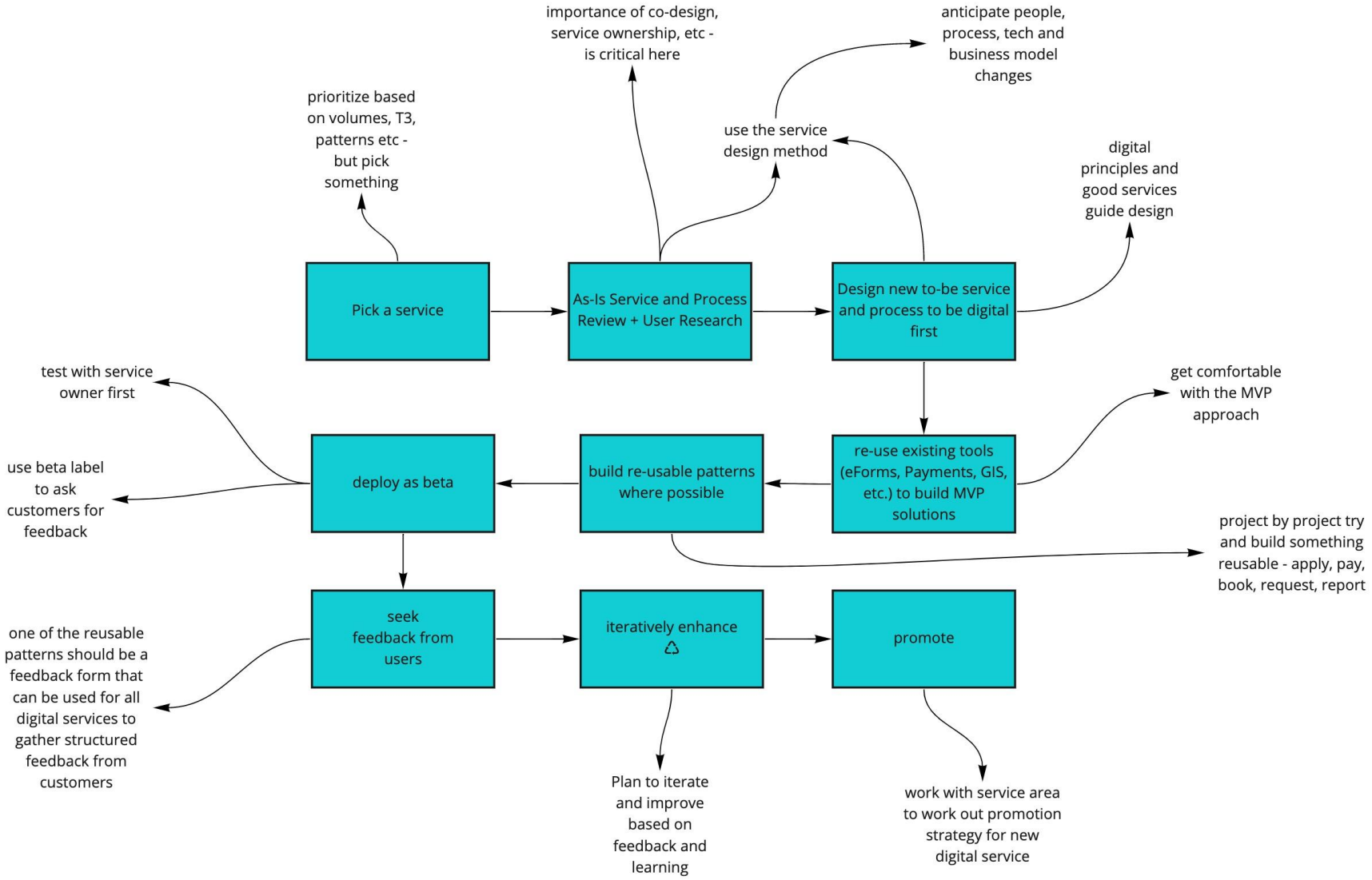

Figure 8: 9-Step Approach to Implementing Digital

This diagram and process highlights the importance of:

- Front-ending any digital work with as-is service and process design, involving TIS and service owners as well as conducting user/customer research.
- Designing new services and processes to be Digital First.
- Re-using patterns, following standards and defaults to speed delivery.
- Launching early and seeking customer feedback.
- Iterating on the product, based on customer feedback, making frequent enhancements.
- Promoting – over other channels – the digital services that we offer.

The Ontario Digital Service has developed a Digital Service Standard that draws upon many global best practices from UK, US, Australian and Canadian government services around the implementation of digital services.

All these practices are applicable to the Town and Town staff who are involved in digital work would benefit from familiarizing themselves with the methodology and approach.

4.6. Working Digitally

Collaboration is central to digital success – and the multi-disciplinary TIS Team is a big part of moving fast, staying agile and flexible and being responsive to needs. Often, this centres around a core TIS Team of three (Project Lead, Business Analyst, Systems Analyst), who are dedicated to a digital project (for a short or long period, depending on the size and scope of the initiative).

Digital Delivery Teams need to be empowered and enabled by leaders to do what is necessary to transform service delivery.

Digital Delivery Teams typically adopt agile project delivery methods – characterized by short “sprints” of work on small and defined work packages – with the goal of rapidly providing workable software that staff and customers can see and use.

Much like the earlier defaults around how to deliver service, there should also be defaults about how digital teams approach projects. For example:

- We prefer prototypes and minimum viable products over perfect solutions.
- We prefer incremental projects over “big bang” launches.
- We prefer multi-disciplinary teams over going it alone.
- We prefer small teams over big teams.

- We prefer agile digital projects over waterfall.
- We prefer open (by default) over closed and proprietary.
- We prefer product evolution over projects.

4.7. Digital Needs Digitized Back-Office Processes

There is one important and cautionary message that should not get lost in the excitement to deliver new, innovative digital services. That is that digital services rely on digitized processes in the back-office and in the field. In turn, these digitized processes rely on core business solutions and, as noted in the current state assessment, these are areas where there continue to be significant gaps at the Town.

To become a Digital First organization as set out in the mission – the digitization of the Town's core processes – people and money via ERP, customer service via CRM, Work and Asset Management, planning, permits and licensing and document and records management, simply cannot be avoided or worked around.

Robust solutions must be implemented and the processes in these domains need to be fully digitized.

Thus, the Town must "stay the course" and continue to focus attention on implementing core business solutions while still addressing new projects that will keep coming forward. These core business solutions include:

- Consolidation of parking system solution (2022 Work Plan).
- Replacement or upgrade of Work and Asset Management system (back-end systems) (TBD).
- Ongoing expansion and evolution of Permits, Licensing and Land (Amanda).
- Implementation of new ERP (TBD).
- Implementation of Document and Records Management (TBD).
- Implementation of field data collection tools (field service systems) (2023 Work Plan).
- Implementation of integration platform (2023 Work Plan).
- Implementation of CRM (customer front-end solution) (TBD).
- Implement knowledge base tool (2023 Work Plan).

5.0 Building a Technology Architecture to Support Digital First

Architecture is about defining and illustrating the requirements to achieve desired business and technical solutions. To build a Technical Architecture to support Digital First, several items come together to create the solution and build a model for Whitby:

- Introduce the Digital First vision, principles and concepts as articulated in the Digital First section.
- Provide a reference model that illustrates the concept and identify the key components relative to the model.
- Define organizational requirements – such as those contained in the Customer Service Strategy Final Report (enable customer service channels, implement a CRM system and a customer portal, define the payments the Town will accept and create a corporate knowledge base).
- Assess organizational technical capabilities and build a target model to compare the current state to desired future state.
- Define the future state technology architecture.
- Continue to invest in infrastructure technologies with the need to undertake a detailed review every 4 years. Technology moves at a rapid pace and infrastructure is no different. The Town has built a solid technology foundation but when core components are not maintained (and replaced) based on lifecycle conditions, the entire technology landscape can erode quickly and start to re-build the technical debt the Town is currently working so hard to overcome.

5.1. Digital First Reference Model

The following table identifies the reference model for Digital First delivery. A reference model, in general, is a model of something that embodies the basic goal or idea of something and can then be looked at as a reference for various purposes.

Reference Model for Digital First

Customers					**Customer Needs / Expectations**
	Residents	Businesses	Visitors		24 / 7 / 365
Channels					From anywhere
In Person	Phone	Web	Email	Text (SMS, etc)	Any device
Chat	Social	Post / Mail	Fax	External / Partner	Omni channel
Devices					Seamless
Smartphones	Tablets	Computers	Voice	Wearables	Simple, easy
Digital / Web					**Digital First Governance**
High Quality Self-Serve Content	Consistent UX	Responsive / Accessible	Personalized	Translated	Strategy
Customer Facing Self-Service Digital Services / Patterns					Oversight
Get Info/Check	Be Notified	Apply	Authorize/ Consent	Tell	Policy, standards, procedure & principles
Pay	Register	Book	Request	Login / Account / Trans. History	Business model design
Front Office (ServiceWhitby)					Service & Process Design
Cust 360°	Interaction	Case / SR	Multi-Step	Work Order	Solution design & Architecture
Integration					
Search	Realtime / API (Direct, Indirect)	Batch	External Data Exchange	Master Data	
Back Office (Depts, Business Units, Contractors and Partners)					
Complete Enterprise Systems	Complete Expert Systems	Partner Access and Partner Systems	GIS Data & Analytics Visualization	Systems of Collaboration and IM	
Mobile (Field and Mobile Staff)					
Devices	Connectivity	Security	Apps (Back Office and Front Office)	LBS (location based services)	
Core Technology					
Networks	Storage & Compute	Cloud	U. Communications	Security	

Figure 9: Reference Model for Digital First

What the Digital First reference model illustrates is that, regardless of the type of customer, the expectation is that services will be available across a variety of channels on the device of the customer's choosing and the experience will work for them.

How the customer interacts follows a series of patterns that can be applied to fit most situations. Front-, back-office and field staff need to be equipped to best handle the customers, regardless of channels. This requires integrated solutions and appropriate technology to support the business whether in the office or out in the field.

All of this needs to be managed in a consistent process with appropriate governance.

5.1.1. Key Components

It is clear that numerous components need to come together to deliver the Digital First experiences that we aspire to deliver for our customers. Key components represented in the target architecture that Whitby will require include:

Component	Core functions
UX Design	Standards for user interface and user experience that provide the framework for presentational integration.
Website	A Content Management System that handles the content management lifecycle, supports personalization and manifests the UX standards through the application of templates, search.
Customer Portal	Provides (via the website) centralized access to services, service requests, online forms, payments, bookings and, if enabled, customer identity and login, account management and history. Depending on the solution, the customer portal solution could be part of the CRM, website, or a standalone product.
CRM System	A CRM provides a customer record and the 360° view, generalized case management, support across channels (social, chat, email, digital, phone and counter) notifications and messaging capabilities.
Integration Technology	Integration technology or direct integrations to support internal and external integration and messaging, queue capabilities as well as hand-off between CRM and back-office systems.

Component	Core functions
Applications	**Standalone Portals** – Unique and business-specific portals provided by vendors that support digital service delivery (e.g., ActiveNet, DocuPet). **Back-Office Systems / Apps** – Specialized back-office systems with specific functions that can be integrated with CRM and digital services (e.g., new ERP, GIS). **Field-Service Systems / Apps** – specialized systems and tools that are designed and built to be used in field, at a construction site or on the move. **CRM-Based Applications –** Provision of additional applications provided through the same platform as the CRM.
GIS	A GIS data and mapping service that allows customers to tie requests and inquiries to locations, addresses, points of interest and assets.
Data and Information	**Operational Data Store** – A local, data cache that stores data from back-end systems for integration and reporting purposes. **Customer Index** – A customer look-up capability that supports client / customer matching across Whitby's systems. **Business Intelligence (BI) and Data Analytics** – Integrated data source to enable staff to select and conduct deeper examination of data, generate reports, custom charts and graphs to allow for greater insights and information.
Collaboration Environment	Ability to attach files, photos, video and documents to cases in the CRM.
Enabling Technology	Ability for staff to access CRM and back-office business systems reliably, securely and remotely wherever they are, on whatever device they have in real-time.
Telephony	A (CTI) telephony system can seamlessly integrate with the CRM to caller identification, screen pops, handle inbound and outbound queues, transcribe calls, and manage calls in an integrated manner. Telephony resides in both the CRM and enabling technology-based capabilities.

Component	Core functions
Security Technology	Designed to secure Cloud-based services, data assets, network infrastructure and all connected systems and devices.

5.1.2. Assessment of Current Capabilities Against Target Architecture

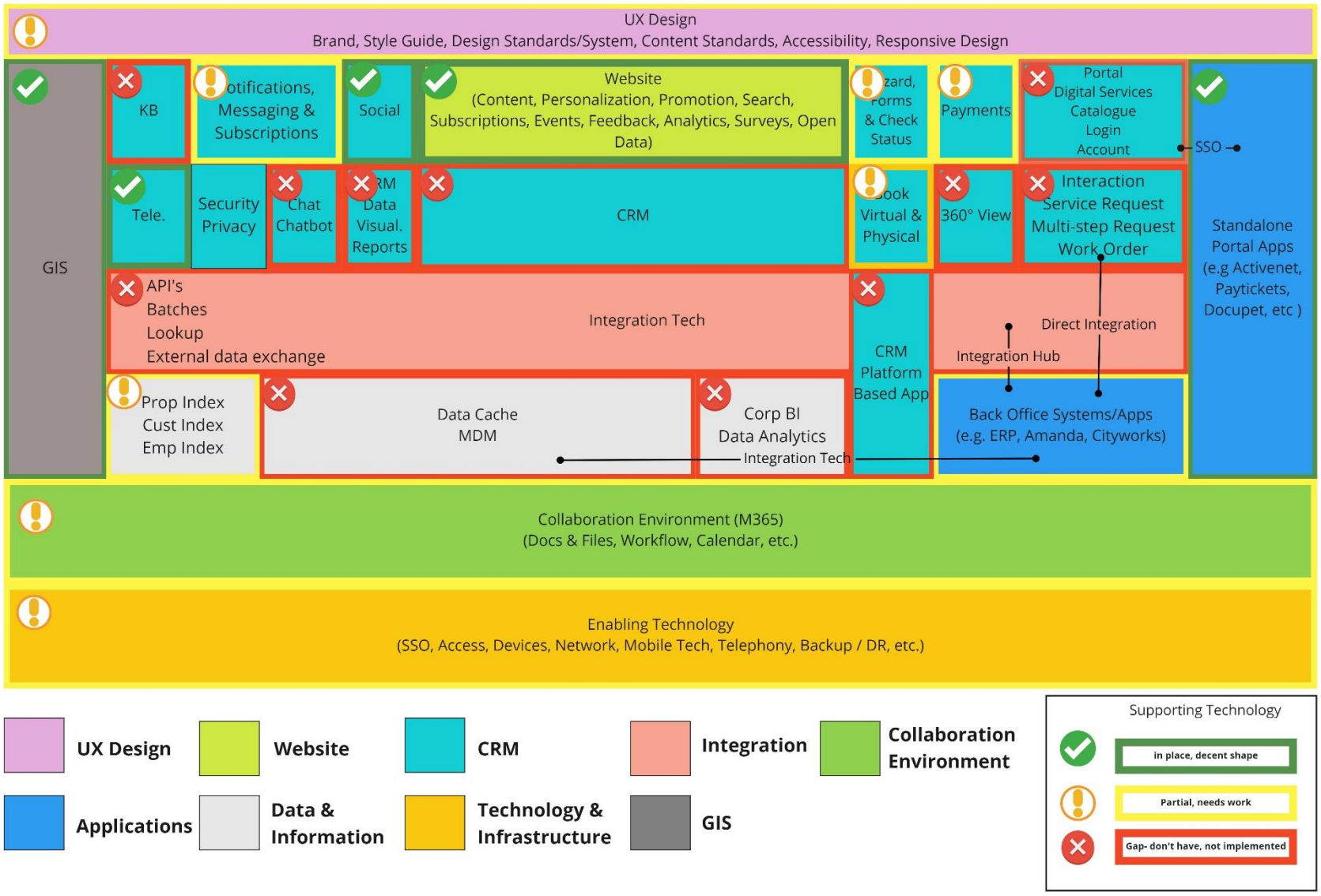

Figure 10: Current State Assessment – Target Architecture

The following table provides description to support the Current State Assessment – Target Architecture illustrated above.

Architectural Component	Sub-Component	Assessment
UX Design	Brand, Style Guide, Design Standards/System, Content Standards, Accessibility, Responsive Design	In development – work is underway to expand use of design standards. Consistency among whitby.ca pages and external apps.
Website (General)	Content, Personalization, Promotion, Search, Subscriptions, Events, Feedback, Analytics, Surveys, Open Data	eSolutions website in use. Site capabilities would allow for functionality of Digital First.
CRM (General)	In General	Cityworks used on limited basis (as CRM for MoC), however no corporate CRM solution in place. Implementation of CRM was identified in the Customer Service Strategy and is planned.
	360° View	Need to utilize new CRM to establish and surface the 360° view to staff and customers.
	Booking – Virtual and Physical	eSolutions booking product Appointio in limited use. Could be used as part of Phase 1 and revaluated with implementation of CRM. Need to utilize a consistent booking solution that is integrated with CRM, calendar and email systems. ActiveNet used for Room Bookings.
	Chat/Chatbot	Currently, these channels are not in use. Need to implement chat and chatbot in association with CRM implementation and service rollout.

Architectural Component	Sub-Component	Assessment
	CRM Data Visualization, Reports	Currently, there is no aggregated corporate report view of service requests and interactions. Moving to a CRM, providing scheduled reporting jobs and utilizing audience-focused dashboards will help to ensure the information is available on-demand.
	Interaction, Service Request/Case, Multi-Step Request, Work Order	Select services are available through whitby.ca but no consistent CRM interface. Enabling consistent customer self-service for case entry is not available and central focus of Digital First.
	Knowledge Base	No corporate public-facing knowledge base. Both staff and public require knowledge bases that are easily searchable. In implementing CRM, the knowledge base is also used for chatbot services.
	Notifications, Messaging and Subscriptions	Current subscription services available through the website. As part of the CRM implementation, will need to review subscription and notification solutions and integrate with CRM. All messaging should be captured within CRM and connected to customer history.

Architectural Component	Sub-Component	Assessment
	Payments	Currently have various payment solutions available online (eSolutions with Moneris and ActiveNet). Interim solution for utilizing eSolutions Form Builder using Moneris has been developed by TIS, including integration to financial system for reconciliation, however, limited uptake by business to implement the solution. ERP project will implement longer-term integrated payment opportunities. Cheque remains a default payment method in many departments. Standard Payment Policy and practices required. Moving forward expand online payment opportunities.
	Portal, Digital Services Catalogue, Login, Account	Opportunity to create portal on website with digital services catalogue. Re-evaluate portal in association with CRM implementation and longer-term consideration for Single Sign On (SSO) solution to provide a customer portal with identity.
	Security and Privacy	Not evaluated for current online services. The cybersecurity program should define the security/privacy requirements for all online services delivered by the Town.

Architectural Component	Sub-Component	Assessment
	Social	Sprout is currently used as a social media aggregator. Future opportunity exists to integrate with the CRM for customer history and potentially case submission as a service channel.
	Telephony	Utilize Bell Total Connect. Ensure CTI and PCI capability in association with CRM implementation.
	Wizards, Forms and Check Status	Currently have eSolutions forms capability. Phase 1 – catalogue and replace fillable PDFs with online forms. Phase 2, shift forms into CRM solution.
Integration Technology	Integration technology or direct integrations to support internal and external integration and messaging queue capabilities, as well as hand-off between CRM and back-office systems	Limited integrations in use. Investigate integration technology and direct connect integration in association with CRM implementation. Identify applications that will be required to connect to the CRM (including new ERP solution).
Data and Information	Corporate BI and Data Analytics	Need to identify a corporate BI solution for aggregated reporting, define common dashboard templates and Digital First performance measures.
	Data Cache and MDM	Currently not in place. Further investigate whether master data management/data virtualization solution is required for longer-term or in association with CRM.

Architectural Component	Sub-Component	Assessment
	Property Index, Customer Index, Employee Index	Currently not formally defined. Review the source for the Property Index and the Customer Index would need to be defined in association with the CRM implementation.
Applications	Standalone Portal Apps (e.g., ActiveNet, Paytickets, DocuPet, etc.)	There are several standalone portals provided by Whitby. These should all be surfaced in a single customer portal.
	Back-Office Systems/Apps	Need integration technology to connect certain applications with the CRM. Identify the information exchange required and implement integrations as part of the CRM project.
	CRM-Based Apps	Potential CRM-based apps will be contingent upon the CRM selected.
GIS		Currently, Esri GIS is used and presented on the web. Will require connectivity to the CRM. Determine requirement for location-based services.
Collaboration Environment	M365, Docs & Files, Workflow, Calendar, etc.	Migration to M365 is already planned by the Town. The CRM must have calendar and email integration and allow for files to end up in the appropriate repositories.
Technology and Infrastructure	SSO, Access, Devices, Network, Mobile Tech, Telephony, Backup / DR, etc.	Technology and infrastructure are in place. Many operational staff have no technology which will be required if field workers are to have a more active role in the Digital First Strategy.

5.2. Future State Technical Architecture

Based on the assessment, it is suggested that Whitby develop out the Digital First Technical Architecture in two phases.

The first, expanding on existing and available technology, focused on the website and moving forward pragmatically. The second phase following ERP implementation, would be associated with implementation of a CRM solution.

Many opportunities exist to improve the Digital First experience for the Town prior to introduction of the CRM. Below, the Phase 1 diagram shows many services delivered through the website and current Content Management System, while in Phase 2 the same capabilities are related more closely to the CRM.

Much of what changes between the two phases involves creating a more robust omni channel experience (inclusion of chat, chatbot, customer 360 °, knowledge base), true end-to-end digital delivery, enhanced self-service functionality and improved service automation (process improvements, back-end integrations, workflows).

The colour coding within the diagrams represents the key components. Notice that in Phase 1, the website is a more significant component than Phase 2, where many of the capabilities shift to the CRM. The components work together to provide the overall digital experience.

5.2.1. Phase 1 – Web Driven: Moving Forward Pragmatically

The following diagram of Phase 1 represents the potential architecture to embrace Digital First concepts prior to the introduction of a corporate CRM.

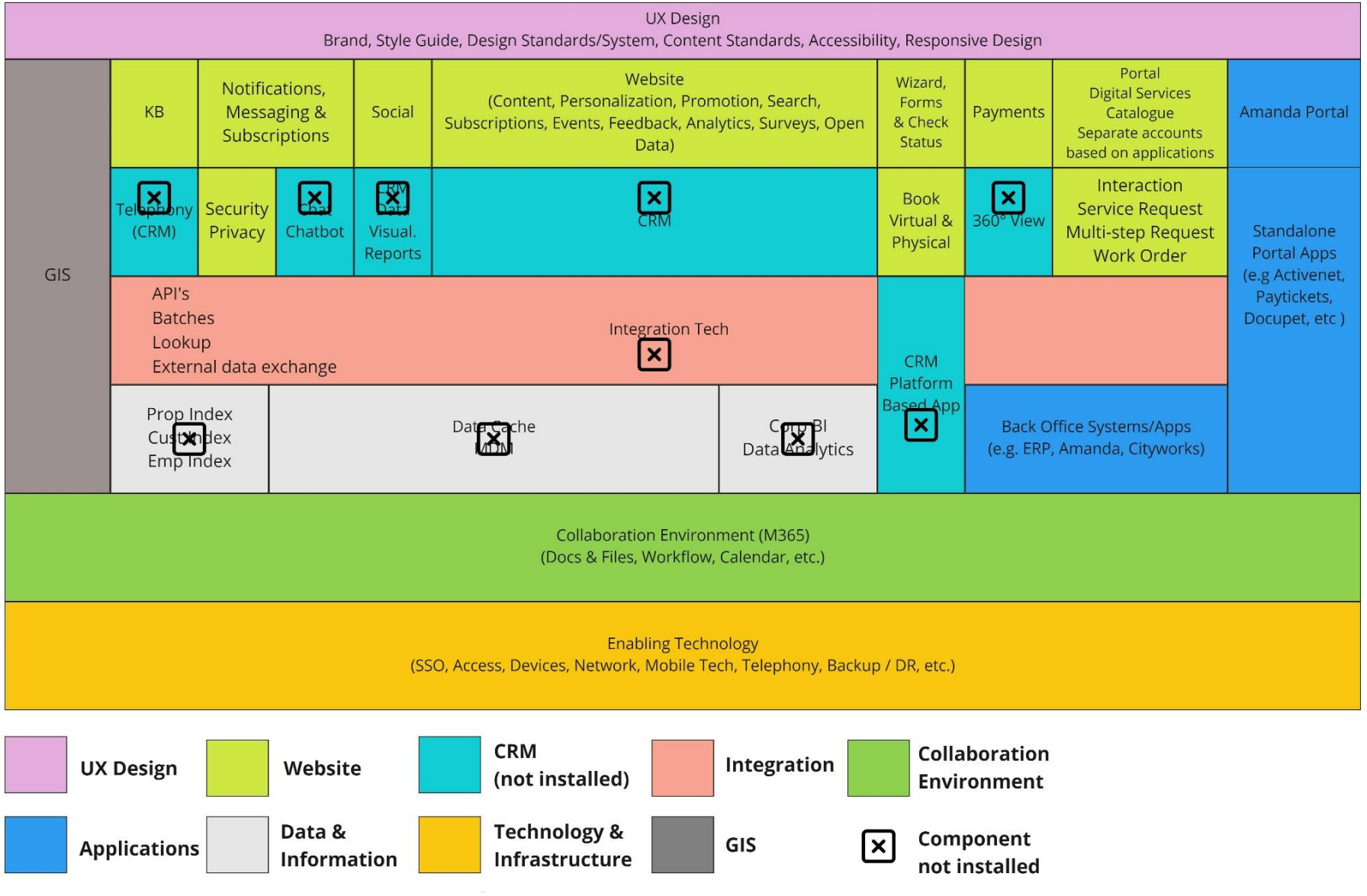

Figure 11: Phase 1 – Technical Architecture

The Phase 1 diagram illustrates some important concepts:

- The Content Management System (CMS) / website solution applies UX standards (through templating) for web content and knowledge base articles. In Phase 1, use of search and web content is the primary source of information for customers.
- The CMS handles web content management (the asset lifecycle), search and web personalization.
- The customer portal for Phase 1 can be a CMS landing page where the current digital services catalogue is provided (similar to the online services at Markham).
- Forms would be developed using the existing eSolutions form builder tool and migrated away from PDFs.
- A generic service request form could be developed using eSolutions form builder tool or GIS for a map-based form.
- Payments would continue to be captured through eSolutions form builder (with Moneris) or existing applications.
- Appointment booking requests would be captured using Appointio and facility bookings through ActiveNet.
- Social media would continue to use Sprout as an aggregator.
- A standalone portal for building permits (leveraging the Amanda platform) could be introduced as a demonstrator of end-to-end service.

5.2.2. Phase 2 – CRM Driven / Portal / Single Account

The following diagram illustrates the Phase 2 Digital First Technical Architecture.

Driven by the CRM (subject to the selected solution), additional features and functionality are introduced to deliver end-to-end digital services. Taking care of back-office and field data collection capabilities is an important aspect of full digital services, realizing greater efficiencies for staff and customers.

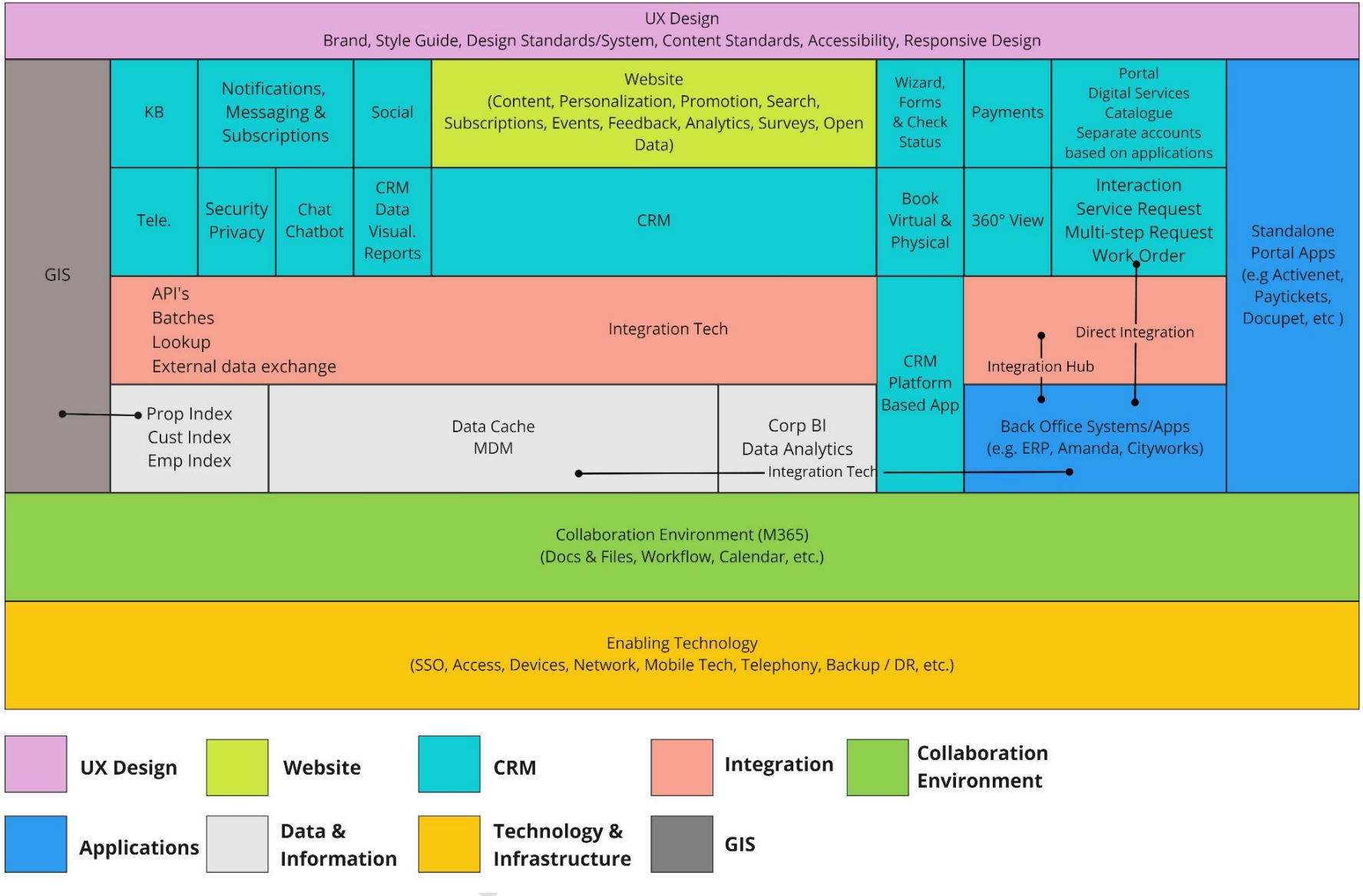

Figure 12: Phase 2 – Technical Architecture

The Phase 2 diagram illustrates some important concepts.

Overall, presentational integration, using consistent UX, presents various separate experiences seamlessly to customers as one single experience, thus, consistent UX standards must be defined and applied to all digital properties (whitby.ca, any sub-sites, CRM interface, any online portal/application, forms, GIS, etc.)

For Customer Interactions

- The CMS / website solution applies UX standards (through templating) for web content and knowledge base articles.
- The CMS handles web content management (the asset lifecycle), search and web personalization.
- In Phase 2, the CRM system handles the majority of web service interactions, requests, forms, bookings, knowledge base, chat and chatbots, social interactions and includes telephony integration. Future iterations can also include customer Single Sign On, login and account management.
- In Phase 2, depending on the CRM, the portal may reside with the CRM and would provide the ability for customers to check status on service requests and provide other centralized functionality. Services requiring authentication could initially be handled with individual credentials and as capacity developed, transitioned to an SSO model.
- The concept of SSO can be considered for customers, providing one identity for all the customer-facing applications. This idea is subject to a number of criteria including ability to pull data/functions into the CRM, ability to expose and integrate SSO, plus consideration for exposing and not integrating where effort and cost are prohibitive. SSO would be a Phase 2 or future consideration.
- CRM handles messaging with customers across all digital channels.
- Conceptually, drive as many transactions as we can through the CRM to create the complete customer record / 360 ° and to support omni channel service delivery.
- Any other portal or digital service that must be implemented outside the CRM experience should also adopt the UX standards (including GIS, Open Data, etc.) and should support SSO.
- Telephony systems should be integrated with the CRM to support a variety of integrated functionality including callbacks, queue management, customer identification, transcription and easy outbound customer contacts.
- A customer can make an account with the Town using their preferred identification / account provider but an account is not necessary to interact with many services.

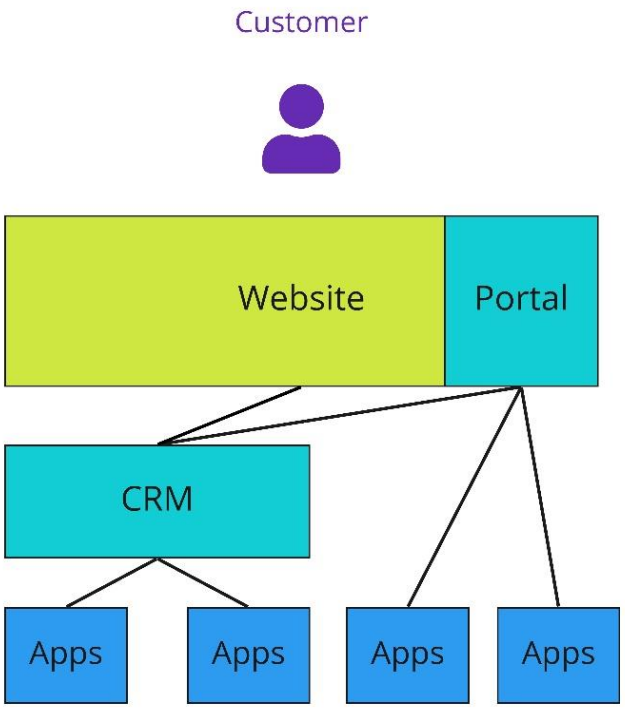

Figure 13: Customer Interactions

For Customer Service Representatives (CSR) and Staff Interactions

- CSRs primarily interact with the CRM system which brokers 2-way integrations with back-office systems providing CSRs with up-to-date status/progress information.
- The CRM system handles interactions, service requests and work orders as distinct entities, handing off to back-office systems where necessary (primarily driven by process integration and existing tools used in the back-office).
- The CRM manages a master customer record and links interactions, service requests and work orders to customers to build the 360° customer view. Customer data that require specific privileges to access will be subject to appropriate protections.
- Staff typically interact with back-office or field services systems or a CRM work order where a back-office system is not in place, not required or where a back-office system can be retired / consolidated into the CRM platform. Over time, we expect the CRM to expand in functionality and to be a key part of an application rationalization approach with systems being consolidated into the CRM platform.

- Field workers require access to apps and the CRM in the field. By giving field workers access to work orders and service requests in the field, data input can be done in near-real-time, benefitting the customer, saving staff time and reducing data re-entry.
- Where appropriate, treat as staff service providers / contractors who are working on our behalf, requiring them to use our systems to track the work they do, thus, they will be expected to access the Town's apps and CRM system.

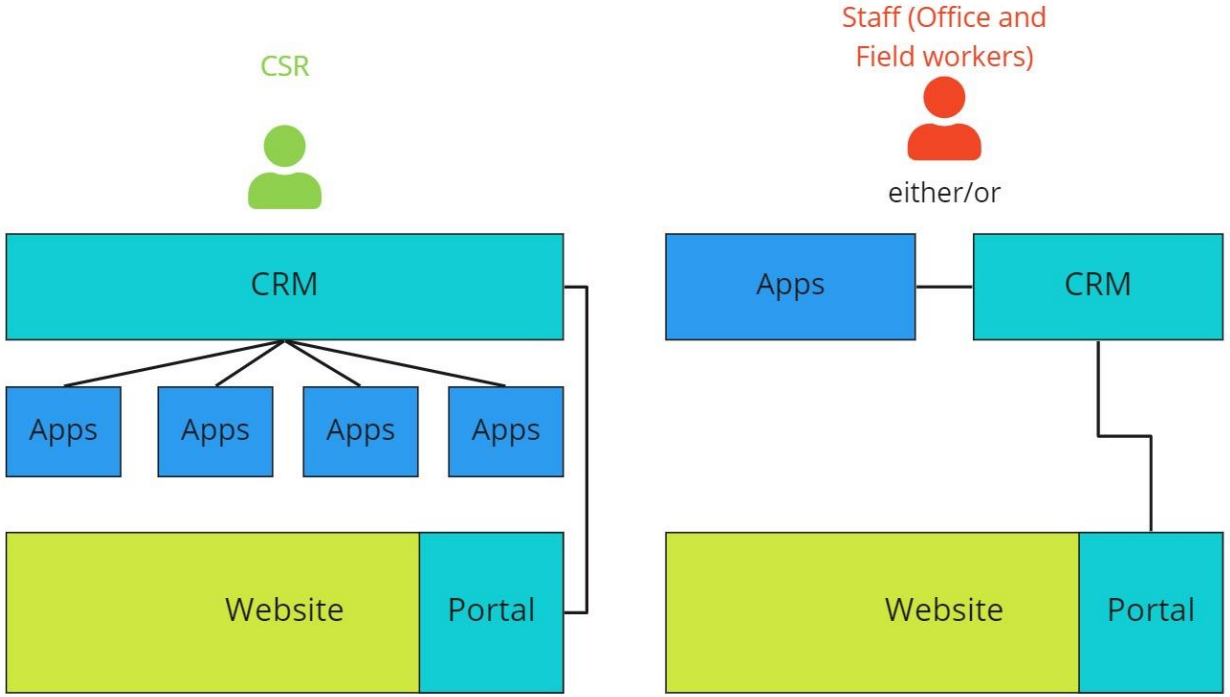

Figure 14: CSR and Staff Interactions

Integrations

- Integrations enable end-to-end digital service delivery by enabling the CRM to communicate with back-end systems. Customers, CSRs and back-end staff use program interfaces they are familiar with and that are best suited to their requirements.
- Where required, establish a bi-directional interface to pass requests and inquiries into back-office systems (e.g., assign a work order in Cityworks, an inspection in Amanda, or an appointment in Outlook).

- Use direct integrations (point-to-point) or an integration technology to connect to core systems (future ERP, Microsoft Cloud Platform, GIS on-premise and Cloud platform).
- Use REST-based web service APIs (an application programming interface) for integration where direct integration (connectors) is not possible.
- Avoid custom-built point-to-point integration, instead, consider using integration technology, where necessary, to connect to back-office systems.

Collaboration

- Whitby is planning to use Microsoft 365 (M365) for email and calendaring – the CRM will integrate with these systems, enabling bookings and appointments to automatically be added to shared resource and individual calendars.
- Email interactions with customers will typically be brokered through the CRM to maintain the customer 360° view.
- The CRM should support document management, capturing file attachments within the CRM, however, consideration can be given to having documentation from all core systems into a central document management repository.

Technology

- All systems should be required to support staff SSO and consideration should be given to using Azure AD as the identity store.
- All CRM and application services and solutions will be available from anywhere, anytime, on any device.
- Field and remote working staff will access CRM and back-office systems remotely using modern mobile devices.

5.2.3. Other Considerations to Support the Technical Architecture

In the section above the concepts of integration and master data are mentioned. The following is intended for further explanation.

Systems and Data Integration

The number of systems that staff need to use can be minimized through integration.

Integration is the act of bringing together smaller components (capabilities, features, data) into a single system that functions as one. In an IT context, integration refers to the stitching together of different, often disparate, applications so that the data contained in each becomes part of a larger, more comprehensive system.

Several integration approaches / patterns are available and are described further below:

- Presentational integration.
- Functional integration.
- Build point-to-point data integrations between systems.
- Using pre-built adapters or connectors.
- Using an integration hub / technology approach.

Presentational Integration

Presentational integration is the method by which the illusion of integration can be presented to customers, by making visually consistent user interfaces that are sourced for different systems.

For instance, presenting components on a web page that are sourced from different systems – a form (from a forms tool) and web content from a web Content Management System, or presenting CRM features or a sub-system portal (potentially Amanda portal) on the website.

By making web applications look, feel and interact consistently – using a standard colour palette, layout, user interface elements – it looks and feels to the user that capabilities and features are built into a single entity – but in fact, are being sourced from various sources.

In this way, by combining consistent visual and user interface standards, customers can feel familiar and comfortable with services and user interfaces.

Functional Integration

Functional integration exposes features available in one solution, to another solution. For example, as illustrated below, the embedding of spatial / map-based functions from Google Maps, into the CRM.

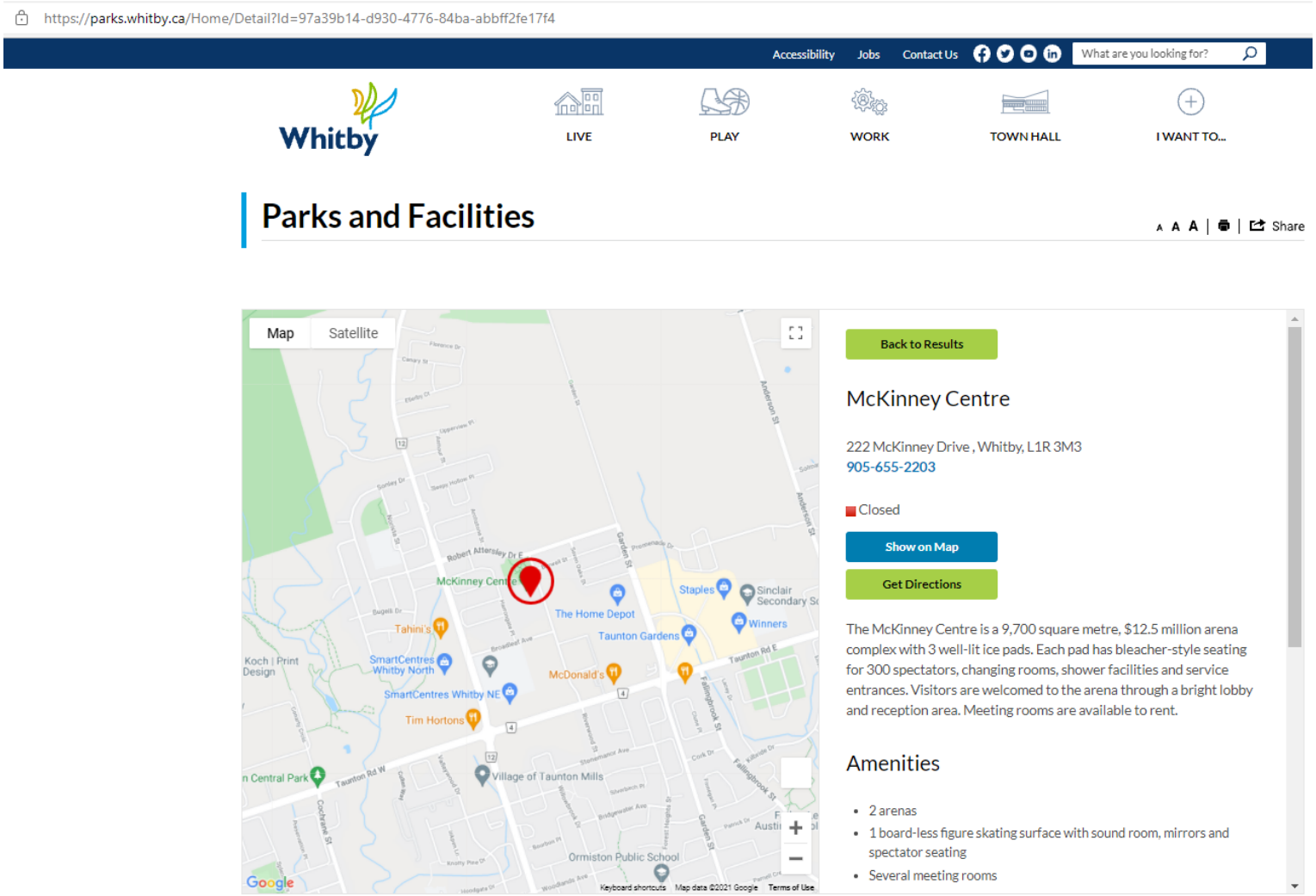

Figure 15: Sample Map Page from whitby.ca

This will be required to link map, document management, digital signatures and other features into the CRM system itself.

Point-to-Point Integration

The point-to-point integration model involves each system that needs to connect with another, doing so directly.

This is an effective approach for a small number of systems, but each system must have information about, and know something about the protocol of connection, of every system with which it integrates.

Where many systems must connect with one another, this leads to an exponential increase in connections. It also makes the integration more brittle since changes in the interface of one system may affect a lot of other systems.

This makes systems difficult and expensive to replace and upgrade. As such, point-to-point integration is not a preferred option, however, might be necessary in specific situations.

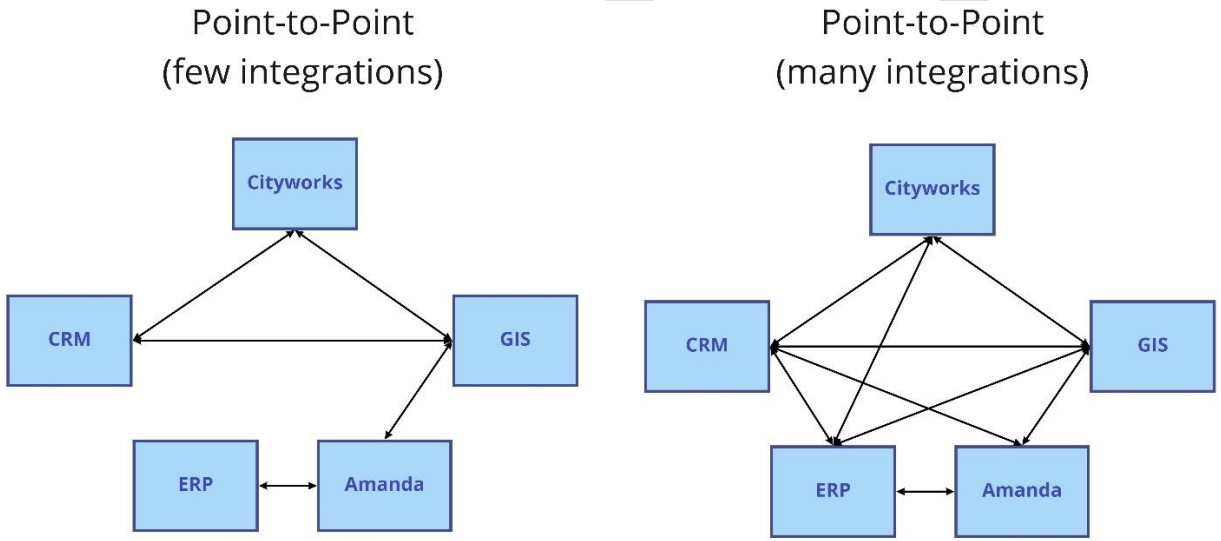

Figure 16: Sample Point-to-Point Integration

Integration Hub

An integration “hub” approach attempts to manage the integration issue in a more coordinated way with connections between systems performed via a “clearing house” or integration hub. This means applications build their connections with the integration hub only, not between each other.

The integration hub acts as a message broker, decoupling the receiver and sender systems from one another. Instead of sending the message to a specific system, the sender can send messages to the broker which acts as an intermediary. The

broker then routes messages to the systems for which the message is applicable and has the intelligence to transform the message into the correct format required by each recipient system.

In this way, each system is unaware of the protocol, or even the existence, of other systems which allows a more loosely coupled architecture to be deployed with an increase in scalability and reliability.

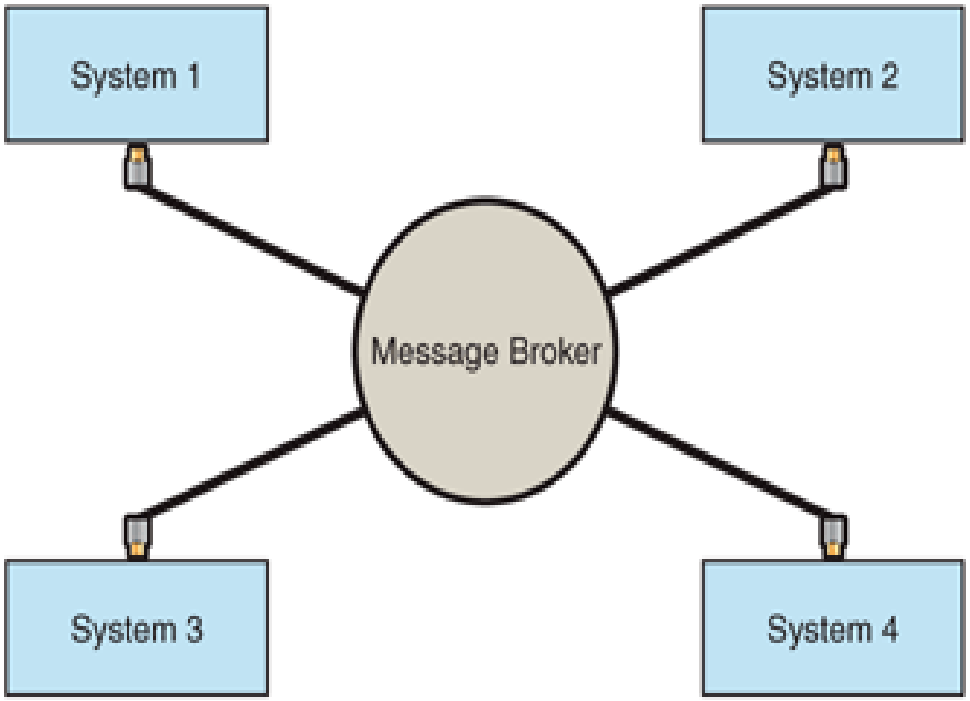

Figure 17: Sample Integration Hub

It generally results in fewer connections and thus is a cost-effective way of connecting a lot of systems to each other.

Integration Technology Solutions

Point-to-Point integrations may work with relatively few connects, but as you integrate more systems, the complexity and burden to maintain the integrations can make it impractical. It is also challenging to consistently apply standards within these environments.

As the need for increased integration develops, an integration platform or solution needs to be considered to manage the integrations in a more effective and efficient way and apply standards. Many technology solutions exist to manage integrations commonly known as Enterprise Integration Application (EIA) platforms. The most common being hub and spoke and enterprise service bus (ESB) – both provide a centralized middleware platform that is used to integrate various enterprise systems and applications.

The integration hub (or bus) acts as a message broker decoupling the receiver and sender systems from one another. Instead of sending the message to a specific system, the sender can send messages to the broker which acts as an intermediary. The broker then routes messages to the systems for which the message is applicable and has the intelligence to transform the message into the correct format required by each recipient system.

In this way, each system is unaware of the protocol, or even the existence, of other systems which allows a more loosely coupled architecture to be deployed with an increase in scalability and reliability.

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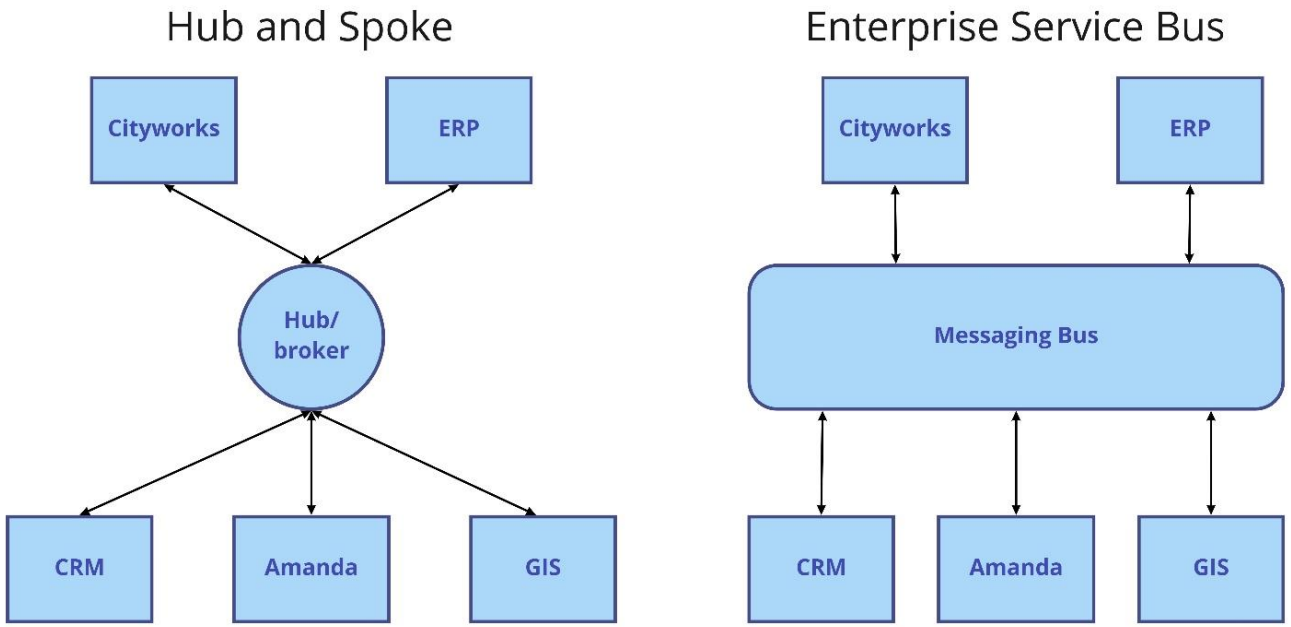


Figure 18: Technology Solutions to Manage Integrations

Pre-Built Connectors

In an increasing number of situations – typically from the vendors of large, widely used systems – pre-built connectors exist that allow some systems to be directly connected to each other via vendor-supported integration solutions (for instance, Microsoft 365 and CRM, or Esri and Amanda). This works well, is fully supported and should be the preferred integration approach where available.

Operational Data Store

In the proposed integration hub approach discussed above, requests are processed through the integration technology to the back-office system.

This can work well for situations where back-office systems have high availability capabilities, have APIs (Application Programming Interface which is a software intermediary that allows two applications to talk to each other) built for interfacing, and where interaction volumes are not of a high-volume which may affect the performance of the back-office system.

However, there are numerous situations where, for various reasons, direct integration into back-office systems is undesirable, such as:

- Performance impacts could impact back-office systems.
- Performance is insufficient to meet requirements of integration (e.g., response times are too slow).
- Lack of formally supported APIs.
- A system run by a third party (province, agency, partner).
- Where only data extracts may be available.

In such situations, a cache of data that can be used in place of the live system may be more suitable.

This is referred to as an Operational Data Store – a copy of the data from the live system that can be used for various purposes including integration and reporting. In this scenario, data is extracted from source systems and loaded into a data warehouse (Operational Data Store, ODS) that can meet performance and integration requirements. Required data is refreshed on an agreed frequency from the source system (which may be measured in minutes, hours, days or weeks).

Data in the ODS can be re-factored or transformed in various ways to support integration requirements.

Any integration with these source systems is handled through the ODS, rather than directly with the back-end system.

As an illustration of how this may work at Whitby, numerous systems at the Town need a list of employees – but they all need the data in slightly different formats (first name, last name, first name and last name, first initial and last name, etc.). The ERP can hold the Town's master data for employees. On a daily basis, the employee master data could be extracted from the ERP and loaded into the ODS. Upon load, the data is re-factored to support the various formats required. Now, any system that requires a master employee list can make a request via the integration hub to the ODS and receive the data in the format that is required. This data is pre-prepared and made available in a highly performant manner.

Master Data: Customer Index

It is expected that the CRM system will establish its own customer database that will be built up over time. All customer records in the CRM will have a customer reference number or unique ID.

But information relating to that customer and any inquiry they make may be stored in various other databases – Amanda, Cityworks, etc.

To "integrate" to the back-office systems as we envisage, the CRM will need to pass a message to the integration technology to make a request to the back-office system or to the ODS where an extract of data from the back-office system resides. However, to be able to process the request, the integration technology would need to know the customer number in Cityworks or in Amanda, not the customer number that is in the CRM.

A Customer Index is a master data tool that matches customers and clients across all the Town's databases and could facilitate this look-up and translation of customer reference numbers. The Customer Index becomes a master record of all customers from all of the front line systems in the Town and is essentially a look-up database that can cross reference customer numbers from one system to another. It also needs to detect changes in the other systems and make sure that common data held in different systems are not inconsistent with each other.

In the long-term, the Town would benefit from building a Customer Index to enable these lookups, to establish linkages between customer records in their various back-office systems and to enable the build out of a much more comprehensive single customer view.

For now, the recommendation is to use the customer identity in the CRM and manage the identity links to the small number of downstream applications within the CRM identity.

Master Data: Property Index

Similar in concept to the Customer Index, there will be value to setting up a single master Property Index that can be used across the organization to index inquiries, requests, etc.

Many of the Town's services rely on location (and address as the primary representation of that) to determine uniqueness, service eligibility, timing or frequency of service. Therefore, a common sub-pattern or feature for many of the Town's digital services is an address look-up. Creating a single reusable digital component that can be used for all Town digital services is clearly a logical extension of our patterns concept.

Thus, having a singular source of data that can meet the needs – and that all digital services can use – would be valuable.

Currently, there is an opportunity to establish Esri as the definitive master address database. By declaring this as the master address database, focus can continue on improving the data quality of one source and this can be defined as a technical requirement in future projects – including the ERP and CRM initiatives.

6.0 The Roadmap Forward

In order for the Town to become a Digital First organization, there is a need to align thinking and commitment to deliver on a refined set of key deliverables; namely M365, ERP, CRM and building permits, the digitized back-office processes and investment in field service tools previously mentioned. These are still mission critical deliverables.

Focus Areas have been developed with corresponding actions designed to help drive these foundational future projects:

- **Digital Service**: What customers expect.
- **Digital Workplace and Collaboration**: Modern tools for a modern and connected workforce.
- **Service and Process Transformation**: Working smarter, not harder.
- **Data and Security**: The foundations to better decision-making and the security / accessibility of data and information.

The Focus Areas include actions that will help grow core competencies and build the foundations for digital success:

- **Culture + Partnerships**: Curate a digital culture and improve partnerships across and beyond departments.
- **Speed + Throughput**: Increase the speed and capacity at which solutions are delivered (i.e., plan less, do more).

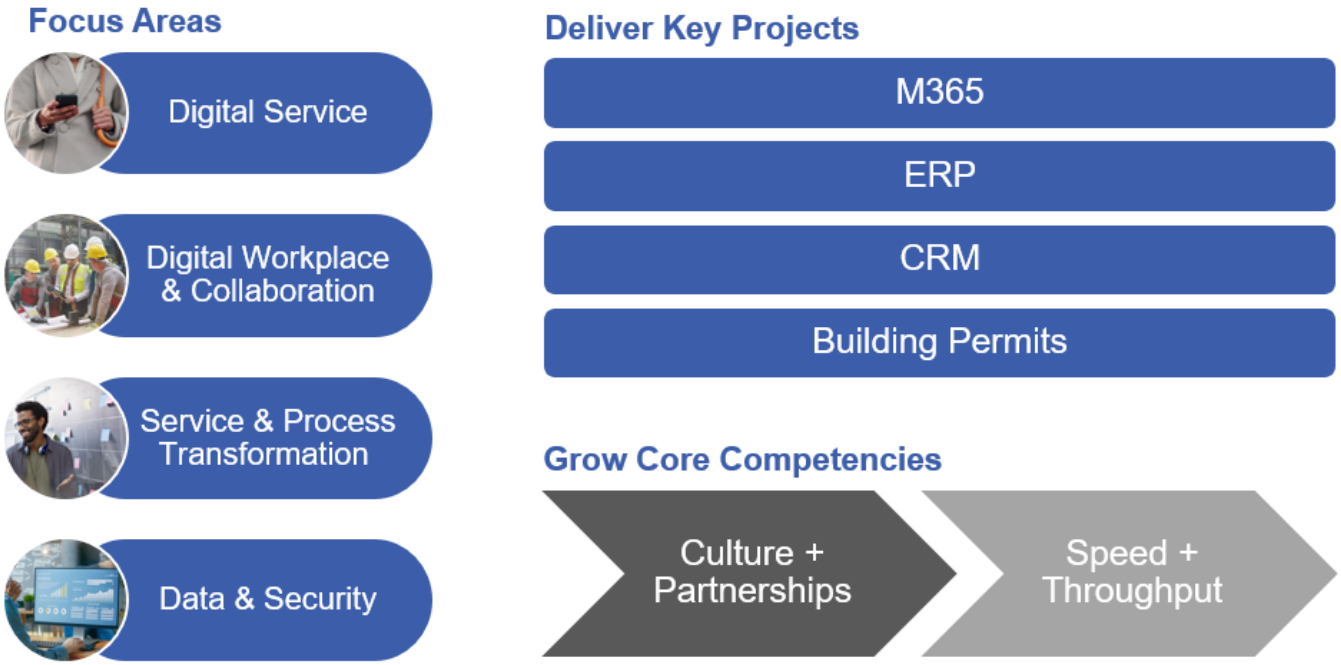


Figure 19: The Roadmap Forward – Corporate IT Digital Strategic Plan (CITDSP) Focus Areas

6.1. Focus Area #1 – Digital Service

Digital is now *the* preferred channel to access services. The Town must invest now in order to support its Digital First commitment. Digital services *will* create efficiencies with staff time, *will* save money through transaction costs and *will* serve customers better.

Work on the digital services area will not be completed all at once – and it might not be done in a perfect way from the start – but it needs to begin now so that iterative improvements can continue to drive and scale the Town's ability to deliver services that customers want and expect. It must be done by way of a partnership between TIS, departments and external service providers.

Together, digital service delivery partners must ensure that the Town invest in the necessary skills and training across the organization to ensure that services can be developed using a Digital First mindset and an approach to consider people and process BEFORE technology.

6.1.1. Build a Service Inventory and Deploy Digital Services

The Town has leveraged some of its current platforms and hosted solutions to deliver digital services such as FOI requests, online waste “bag tag” orders, parking ticket payments and animal license purchases. This work must continue to move forward in partnership between the business units and TIS. With or without a CRM, the Town should continue to enhance and deliver digital services for customers using the solutions it has right now.

Digital First organizations will often commit to delivering a certain number of digital services each year. This drives momentum around modernizing services and demonstrates that an organization is committed to customers. The Town should plan its digital service expansion in partnership with service owners across the organization. **It is suggested that the Town can feasibly commit to deploying 10 new digital services every year.** This is contingent on clear roles and responsibilities being established around digital services. Service owners (departments providing services) must take accountability for, and ownership of, digital channels as an extension of the services they provide. It is also contingent on prioritizing digital service delivery vis-à-vis other critical projects (ERP, CRM, etc.) that will also require involvement and partnership from departmental staff.

This could be work to catalogue and replace fillable PDFs with online forms, expanding use of solutions like Amanda and ArcGIS to create online portals for customers and/or partnering with external service providers (like paytickets.ca or DocuPet) to create the online self-service options customers want.

These digital services will likely not be end-to-end services from the start – meaning they will not be integrated or connected to the back-office – but the customer-facing value they will provide will keep the Town moving forward and will impart lessons that can help inform the deployment of other digital services down the road.

Using the MOSA work as a basis, the following list was developed and should be used by the Town to continue to build out and prioritize the development of new digital services. Call volume data, website traffic and resourcing factors should help to inform further development of this list and establish priorities. Developing a service inventory will allow the Town to prioritize and plan the deployment of new digital services as well as identify patterns that can be replicated and re-used to develop similar services.

More research and work with service owners, front line staff and customers is also expected to identify new opportunities to digitally deliver services, and these should be prioritized and built into the service inventory. Furthermore, some services may logically be bundled. Nonetheless, the intent is to avoid over-analysis, embody the “show don’t tell” digital philosophy and begin to drive out customer-facing digital improvements in these high priority areas. In the early stages, the focus should be on “learning by doing”.

At this point, the Town should focus its attention on moving the following services online.

Service		Service Ownership		Service Patterns									
Service Name	**E-form**	**Dept**	**Group**	**Apply**	**Be Notified**	**Book**	**Check**	**Get Info**	**Internal w-flow**	**Pay**	**Register**	**Request**	**Tell**
Snow Clearing	Yes	Public Works	Operations Services					Y	Y				Y
Boulevard Maintenance	Yes	Public Works	Operations Services					Y	Y				Y
Sidewalk Snow Clearing	Yes	Public Works	Operations Services					Y	Y				Y
Short Term On-Street Parking	Yes	Legal and Enforcement	Parking Services	Y				Y	Y				
Parking Services Complaint	Yes	Legal and Enforcement	Parking Services						Y				Y
Pay a Parking Ticket	Yes	Legal and Enforcement	Parking Services							Y			
Driveway Widening & Curb Cuts		Public Works	Engineering and Infrastructure	Y				Y	Y	Y			Y
Curbside Garbage & Recycling	Yes	Public Works	Operations Services					Y					
Dispute a Parking Ticket		Legal and Enforcement	Parking Services			Y			Y			Y	
Permanent Sign Application		Legal and Enforcement	Engineering and Infrastructure	Y				Y	Y	Y			
Request a Tax Certificate		Finance Services	AP/R					Y	Y	Y		Y	
Pay Property Taxes		Finance Services	AP/R						Y	Y			
Manage Property Tax Billing		Finance Services	AP/R	Y	Y			Y	Y				
Freedom of Info Request	Yes	Office of CAO	Town Clerk					Y		Y		Y	
Tax Rebate & Relief Programs		Finance Services	AP/R	Y			Y	Y	Y		Y	Y	
Cat and Dog Licenses	Yes	Legal and Enforcement	Animal Services	Y				Y	Y	Y			
Marriage Licences	Yes	Office of CAO	Town Clerk	Y		Y		Y	Y	Y			

Service		Service Ownership		Service Patterns									
Special Events Permits		Office of CAO	Town Clerk	Y				Y	Y	Y			
Commissioner of Oaths		Office of CAO	Town Clerk					Y		Y		Y	

Figure 20: Whitby Service Inventory 1.0

6.1.2. Launch a PDF to eForms Conversion Program

To keep traction on delivering digital services, the Town should build on current work done to support implementation of the new website in order to launch a formal "PDF to eForms" conversion program. The benefits of eForms over a static or fillable PDFs are evident. eForms:

- Create opportunities for further automation, improved customer data and back-office integration.
- Provide a more consistent user experience (style wise, usability, branding, etc.).
- Can provide better security (custody and control) of personal information.
- Can utilize auto-complete features built into modern browsers making it easier for customers to complete.
- Are easier to modify and re-design if collection requirements change.
- Can provide mouse over instructions to assist customers.

Using the service inventory as a guide, those services that currently require customers to populate and submit PDFs should be identified and marked for changeover.

The service inventory should expand over time so the Town should continue to work through and prioritize services to convert using the Town's eSolutions platform. Other platforms could be considered here, however, there are already a number of eSolutions forms available on the Town's website so it would be most efficient to continue using this platform for the time being.

A forms conversion program requires clear leadership and guidance as well as funding if external resources are chosen to "do the conversion work". The Town, likely through T3, will need to determine what department is accountable for the program and should ensure that regular reporting occurs so that the organization is aware of ongoing progress.

6.1.3. Adopt and Apply UXD Standards

UX/UI (user experience / user interface) design is a critical competency for Digital First, user-centric organizations. The Digital Media Lead within the Communications department is already working to develop digital standards so consideration should be given to adopting an existing user experience design (UXD) system.

The Town needs to adopt a UXD system that helps refine user experiences and make interactions simple, useful, rewarding and mutually beneficial. UIs are the most prominent Town assets (web page, app or digital service) that customers engage with nowadays, so it is absolutely critical for the Town to get it right.

A design system (or style guide) create standards by providing instructions on how to apply visual design elements such as colour, patterns, layouts and so on. This makes it much easier for digital service designers within the organization to create high value, common experiences for customers across a wide range of Town services. UXD standards make digital services familiar and easier to use.

The Town needs to explore existing design systems used by leading organizations and adopt an approach to UXD that works best. Most resources are completely open source with attribution only required for very specific branding elements.

For inspiration, the following provides details on the most prominent design systems commonly sourced:

- GOV.UK

  The GOV.UK Design System provides a system of styles, components and patterns built with Sass (syntactically awesome style sheets) and JavaScript. Each component page contains not only demos and code snippets, but instructions on how and when to use the component as well as how the component works.

- US Web Design System (USWDS)

  The USWDS provides components, utilities, design tokens and templates for developers and design assets in Sketch and Adobe XD for designers. The USWDS has a broad mandate to shift citizen behaviours by leading through design – Design System Report: Transforming the American digital experience. The USWDS is fully available through GitHub.

- Canada.ca

  Canada's "Aurora" Design System is a set of UI components and style guides for the Canadian government. The documentation provides live examples, HTML snippets, as well as advice on best practices for designers. Uniquely, they also have created standards for data visualization. There is a government-wide wiki that is collaboratively built by designers and developers across the organization that has become a central repository for UX information (GCwiki).

- Ontario.ca

  Similar to the Government of Canada, Ontario's Design System contains foundational assets and elements, styles, components and patterns for use. The Province of Ontario legislated digital standards through the *Simpler, Faster, Better Services Act, 2019*.

- Australian Government Design System (BETA)

  The Australian Government Design System contains a set of 30 UI components built with Sass and three pre-made templates. Instructions provide live examples of each component along with snippets of SCSS, HTML and React which basically allow developers to drag and drop certain elements. Metadata and rationale for stylistic elements are also provided to ensure users understand why certain standards are in place.

- British Columbia - DevHub (BETA)

  The BC DevHub Beta provides a concise collection of digital UI resources, tools and components. This standard is evolving for BC and is a good reference point for the Town who is relatively new to UXD and is looking to create a simple, first iteration of a style guide for digital services.

6.1.4. Establish a Payments Policy

The Town must develop a Payment Policy that makes payments easier and simpler. There is no question that online payments are now an expectation of Town customers who routinely purchase online through other retailers, service providers and other levels of government.

The Town's recent Customer Service Strategy identified inconsistent payment options and limited technology as areas that require immediate attention. In particular, it noted that the types of payments supported across services and divisions varied greatly with a couple of areas accepting a variety of payment methods while others only accepting cheques.

The recommendations from the Report included defining the payment types the Town will accept, assessing the financial impact of changing available payment methods and determining payment types by service.

Improving payment processes – particularly reducing the need for in-person payments and making online payments more readily available – would help to improve the customer experience and would greatly reduce friction for administrative staff.

To support the expansion of payment methods, payment channels and which services can be supported, a Payment Management Policy/Procedure needs to be developed. Creating the policy ensures consistency in the payment methods of existing and future services and reflects the requirements for methods used.

The policy should include:

- Fees and charges catalogued by Service Type, Payment Method and Payment Channel.
- Determine the processing fee payment model (incorporate into the Fees and Charges By-Law).
- Identify limitations by payment method (don't disincentivize business units).

Town staff developed criteria to identify services that can leverage in the creation of an online Payment Policy. This included online payment options, a process to enable online payments and roles and responsibilities for implementation and service delivery.

These should be reviewed and supported by the organization in order to successfully deliver online payments.

Whitby's Online Payment Criteria

Item	Criteria
Fulfillment	• Fulfillment can either be electronically delivered or manually provided by the business owner. • Does not require the requester to visit a Town facility as part of the fulfillment process.
Service Volume	• Medium to high-volume (over 50 transactions per month).
Service Cost	• Low dollar (under $1000).

Workflow Complexity	• Low complexity and does not require:
	  ○ Validation / approval.
	  ○ Documents to be submitted.
	  ○ A signature.

Resource Capacity	• Resources available to:
	  ○ Work on the implementation project.
	  ○ Take on new service.
	  ○ Maintain new service.
	  ○ Complete daily / weekly / monthly and yearly reconciliation / financial controls activities.

By-laws / Regulatory Compliance	• Update Fee By-law to account for additional costs. • Service is currently not being offered at a Town facility with a credit card payment option (Merchant Card Agreement condition forces both online and in-person credit card fees to be the same).

Service Dollar Value & Volume	• Economic justification to enable the service considering total cost to deliver the service.

Requirements to Enable Whitby's Proposed Online Payment Process

Business departments are encouraged to do a "total cost of service calculation" taking into consideration revenue and expenses. Fulfillment costs (service fees, mailings, etc.) can significantly impact the overall net revenue of these services. Costs associated with providing online credit card payment will be deducted from the revenue generated by the service (estimated to be $1.03/transaction for bag tags). This involves service fees, software maintenance, audit / security fees, fraud costs, banking fees, refunds, etc.

A service reconciliation process is mandatory and requires frequent involvement of business owners (daily, weekly, monthly and yearly reconciliation processes). Since there are few services with true online tools (i.e., a database to record the service / transaction), manual processes to record, validate, fulfill and reconcile will need to be done by the business owner. This data must be accurately maintained and shared with Finance.

Each new online payment service will need a custom-built workflow process developed. TIS will be leveraging FormBuilder (eSolutions) and Moneris (payment service for the Town) as the primary technology tools. An ad hoc report will be available for the business owner that provides details for each transaction. Business owners will need to determine how they plan to record, fulfill and reconcile these transactions.

As the Town gets more experience with online credit card payments and/or additional financial transaction tools (ERP), expansion of the possible services for online credit card payments is expected.

Whitby's Online Payment Roles and Responsibilities

	Implementation Project		Delivering Services (Operational)		
	Plan and Develop Service (develop end-to-end implementation of the service)	**Communicate Service** (ensure public and staff are aware of the service)	**Service Fulfillment** (deliver service to the public)	**Service Reconciliation** (fulfillment and payment processing reconciliation)	**Issue Resolution** (resolve issues associated with the service)
Business Department	Involved	Involved	Lead	Involved	Lead Business involved
Finance & Treasury	Involved	Involved	Involved	Lead	Lead Finance involved
Corporate Communications	Involved	Lead			
Technology & Service Innovation	Lead	Involved		Involved	Lead Technical involved

Further information regarding payments can be found in the next section, Implementing Digital Payments, and in the Modernizing Customer Payment Options appendix.

6.1.5. Implement Digital Payments

Currently, whitby.ca has a number of services identified online under I Want To…. While several key services are indeed available online with payment options (recreation programs, cat and dog licenses, garbage bag tags, parking tickets) there remain many services that need to be moved online with payment options provided.

Short-Term Online Payment Activities

Since the technology is already in place, enable online form payments through eSolutions FormBuilder with Moneris.

This solution has been used for the Garbage Bag Tag Order Form. This model is considered a hybrid integration payment gateway by Moneris and helps to limit the scope of PCI for Whitby. Optionally, Whitby could develop out a general payment processing form/portal using the same solution.

A good example of the payment form (using the same product) is the Township of Georgian Bay, providing a form through which payment for different services can be received using credit card or debit: Payment Processing Form - Township of Georgian Bay (gbtownship.ca).

From the online services catalogue – and based on the criteria and process identified above – determine the appropriate forms that could go online (even temporarily, depending on timing of medium-term initiatives like building permits, licensing, and the CRM solution). These temporary solutions (or prototypes) provide the opportunity to not only provide an immediate fix but also to test the results in order to develop a more robust solution in the next iteration.

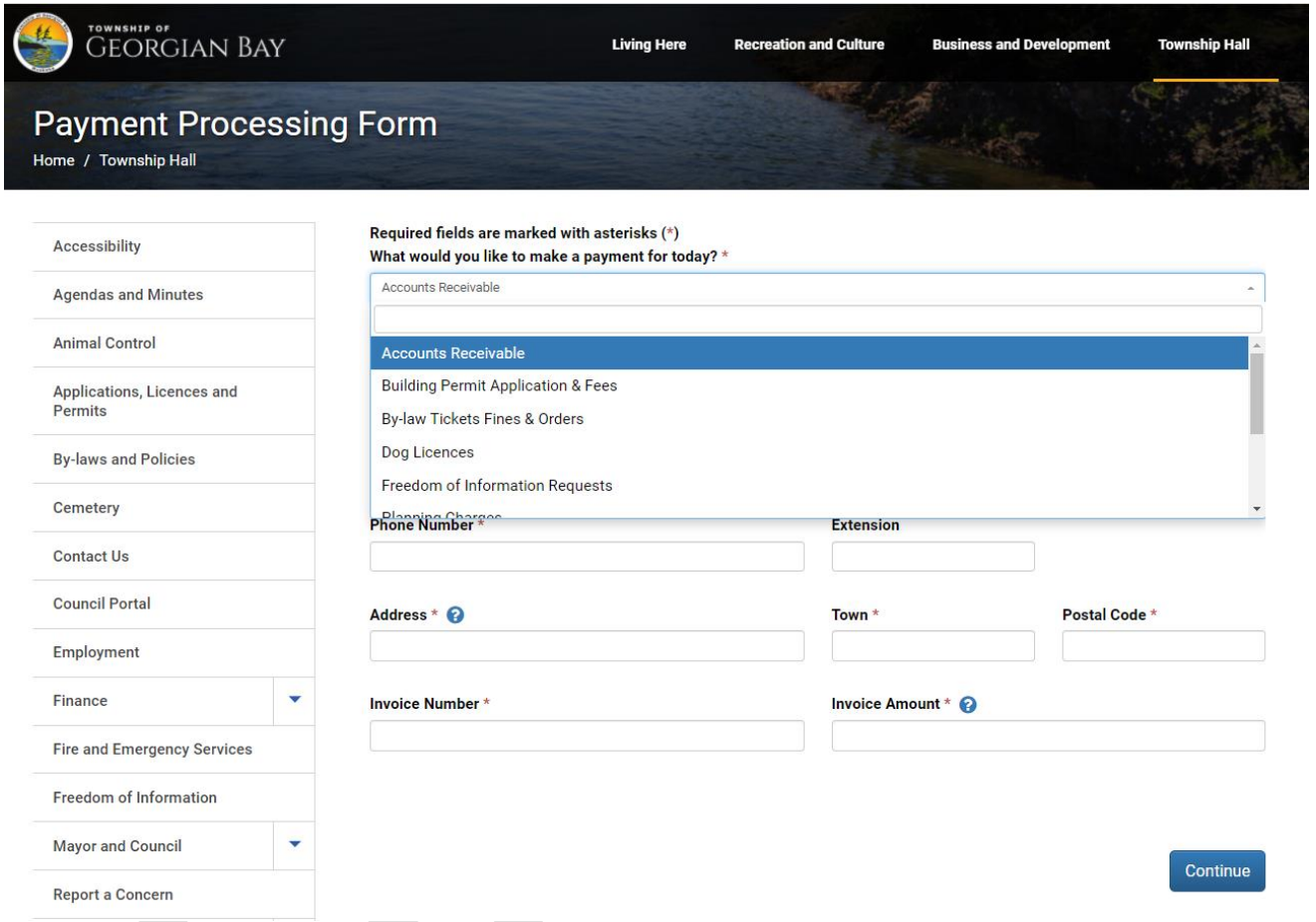


Figure 21: Georgian Bay Payment Processing Form

Medium-Term Online Payment Activities

Portal for Online Building Permits – Further identified in Focus Area 3, Service and Process Transformation, the Amanda public portal could be utilized for establishing an online presence for building permits. Online payments would be a key aspect of this initiative, either directly through the Amanda payment module, or indirectly through 3rd party payment integration options.

Portal for Online Licenses – Following the implementation of the Amanda public portal for building permits, the same portal could be used for issuance of licenses. Extending the payment types to the licensing business units would further leverage the Amanda technologies.

Integrate Payment Solution to CRM – Payments are not a direct functionality of most CRM solutions, however, they can be easily integrated. For any service requests created in the CRM that have associated fees, integrating payment functionality is an option.

Integrate Payment Solution with ERP – Payment management is best optimized when services can be automated. Currently, integration exists between the financial system and some of the online payment channels (Moneris, ActiveNet). With the implementation of the new ERP solution, it will be important to ensure integrations can be done from the payment solutions to the ERP and, where possible, have payments directed to the appropriate business GL. Important controls will still need to be in place as part of the payment reconciliation process, but wherever possible, efforts should be made to integrate and automate the flow of information. Project Wisdom has requirements to provide a level of digital payment management and to centralize, support and interface with other online payment solutions.

Long-Term Online Payment Activities

Identify Opportunities to Consolidate Payment Providers – In the longer-term, consideration for integrating the various payment solutions into one platform is a potential opportunity. Recognizing that many applications have proprietary payment solutions incorporated into their products, as products turn over, the opportunity will exist to identify requirements on standardized payment solutions.

Earlier this year Durham issued an RFP (#NRFP-1122-2021) for a Payment Gateway and Processing Solution. At a high-level, the scope included the electronic payment gateway and processing solution, funding and settlement, customer service and support and reporting capabilities. The solution was to provide capability to process online payments via major credit or debit cards and potential for mobile payment technology (PayPal, Google Pay and Apple Pay) in the future. Whitby can gain insight through Durham's implementation to determine the options for consolidated payment services and potential requirements.

Longer-term, the selected ERP solution will also serve to inform payment integration requirements for future online solutions.

6.1.6. Implement Digital Building Permitting

The Town has implemented the Amanda system to automate the building permitting business process. The next step is to expand the automation to the customer for self-service. An end-to-end BPO exercise was conducted by the consultants as part of this project and the high-level recommendations are as follows:

- Implement an online customer portal for customer self-service – apply for a permit, pay online, check status, request inspections, receive inspection results, etc.
- Expand Amanda to other business units and processes, e.g., Engineering approvals, securities and deposits management, etc.
- Implement digital plans review, approval and consumption of eDocuments that works with the portal solution.

- Eliminate the current paper-based document management model to electronic documents.
- Improve the current mobile field data capture to facilitate near-real-time data entry by the field staff directly into Amanda.
- Publish Amanda permits data online for public consumption through a GIS dataset.

For more information, see the section about optimization of the Building Permits process.

6.1.7. Actively Promote, Measure and Report on Digital Uptake

The Town needs to establish progressive targets for the uptake of new digital services and promote their adoption through incentivization, communications and social media. Planning and measuring digital services in a transparent way will help to prepare customers for new service channels and provide them with an opportunity to provide feedback to ensure widespread adoption.

Inviting preliminary customer opinions and feedback with respect to beta service releases or MVPs will help to design better digital services to meet the needs of actual customers. User research and customer feedback should be ongoing components used to continually refine digital services offered by the Town.

Reporting on adoption rates publicly can also help to drive users to adopt digital channels which will save the Town both time and money. See the Work Plan section for further information as well as performance metrics the Town can use to measure digital services.

6.1.8. Leverage CRM as the Core Platform for Service Delivery

Following implementation, a CRM solution should become one of the Town's core platforms. It should be used across the organization to fill gaps in capabilities that have previously been filled by in-house development. As such, there are various areas where the selected CRM can be used to rationalize and replace existing systems and to meet future end-to-end case management requirements.

The Town must take an architecture-based approach to planning for the CRM in order to reduce system duplication, disconnection and complexity and promote re-use and integration.

CRM architecture must be developed with a customer-focused view of digital services, including a CRM system that can support the digital service aspirations and deliver a range of new digital services. Reducing the number of systems and avoiding customization by focusing on commonalities will help the Town promote collaboration and sharing between teams and facilitate a more proactive approach in advancing technology capabilities.

An explicit goal for the Digital Architecture Program (full detail is available in the Digital Maturity Model appendix) will be to reduce the overall technology footprint through a consolidated set of platforms and tools that can be used across the organization rather than in support of one team, division or department.

6.1.9. Design and Build CRM-Based Digital Architecture (Build for the Customer Service Strategy and CRM)

The Town needs to establish increased digital agility and flexibility to deliver on the new Customer Service Strategy.

To do this it must make proactive, forward-looking decisions around the forthcoming CRM as well as other solutions currently used to deliver digital service. The Town must develop a "right-sized" approach to long-term plans and approaches as well as ensure that CRM, case management and digital services evolve along with growing and changing service needs.

This requires the Town to:

- Define architecture principles / guidelines and supporting policy regarding technology procurement.
- Establish baseline standards for information and data, application and integration, technology and security domains that must be met when implementing technology solutions.
- Review technology proposals for fit to standards and establish a process for dealing with exceptions.
- Set out its lifecycle plans and roadmaps for its key technologies.
- Socialize important architecture concepts – advise leaders and project teams to secure alignment with architecture.
- Proactively scan and evaluate new and emerging technology opportunities.

Currently, TIS is responsible for establishing architecture standards and requirements that should inform the procurement of new technology solutions. It is critical that departments consult with TIS at the onset of exploring new technology. Adhering to centralized standards will lead to more sound procurement decisions by ensuring there is a plan to implement, integrate and support new solutions.

The partnership between TIS and departments is vital to planning a technology environment that puts security, business objectives and users first.

The Building a Technology Architecture section provides the detail necessary to help the Town prepare for CRM and can be used today to support the development of Digital First services using other tools.

6.1.10. Adopt and Apply Digital Service Patterns (Build for the Customer Service Strategy and CRM)

Customers want to experience consistent, personalized interactions with the Town. They want to self-serve 24/7 and want recommendations on programs and services that might be of interest to them as well as reminders for ongoing work or other events in their area.

As the service provider, the Town needs to deliver a consistent experience and set up a 360° view of all customer interactions with the Town. With a Customer Service Strategy approved and a CRM platform forthcoming, the Town needs to develop the digital rudiments to hit the ground running.

The Town should adopt and apply reusable service patterns to design and build digital services. By building the process, design and technology components that make up each of these patterns, the Town can establish a toolkit that will help to deploy new digital services more rapidly. By breaking down services into their component parts, the Town can start to identify common interactions and tasks across stages of services – things like reporting a problem, applying for something or checking eligibility.

These are service patterns.

Service patterns are a generalization that help us look at a service in a conceptual, high-level manner, before getting too bogged down in details. TIS Business Analysts are ideally situated within the organization (with knowledge of technology and business process) to identify and build services around patterns, therefore, it is critical that they be included in these early design conversations.

Identifying service patterns allows us to break down services into their component parts, to build out guidelines and best practices that we can apply to the components. They help us identify how they can be designed consistently to meet user needs. And they also help us consider broader topics like ways of working, uses of underlying technologies and how services are supported by capabilities and processes inside organizations.

Pattern Name	Pattern Description
Apply For Something	Enables the user to complete an application process. In most cases, this pattern is linked with a “Check” pattern to assess the eligibility (e.g., is the user being asked to submit a type of application to complete a task?).
Book Something	Enables the user to book things such as a course, appointment, a room, an item, or a person’s time. In most cases, a specific date and time need to be selected.
Check Something	Enables a person who needs to understand if it applies to them or helps them find something (e.g., the status of something, the closest location, or their eligibility for a service).
Consent or Authorize	Enables the user to provide consent to something (such as sharing data within the organization, with a 3rd party, or with the CRA), provide approval or acknowledgement on the use of personal information and acceptance of the process.

Pattern Name	Pattern Description
Get Information	Find information (read text on website, access a knowledge base article, watch a video, listen to audio, download a document or a guide) about services or a service, when to use, how to use, requirements to use, communicate expectations of use.
Get Notified	Receive an alert / notification about something.
Internal Workflow	Enables staff (including municipal staff, contractor, partners) to handle requests, cases, manage processes and workflows and secure approvals and sign-offs.
Pay for Something	Enables the user to complete a monetary transaction toward the municipality.
Register for Something	Enables the user to complete a process (like booking something). By registering, users will create an account with personal and sensitive data that they can return to.
Request Something	Enables the user to ask for something specific in order to get to some tangible outcomes (e.g., a copy of a certificate, a pass or a digitized record).
Tell us Something	Enables the user to give some information to the municipality, like a referral or to report something.

Recognizing and using service patterns helps us:

- Provide a common starting point that focuses our attention on commonalities over differences.
- Apply the results of our user research consistently.
- Avoid reinventing the wheel each time and focusing on interaction designs and patterns that work.
- Deliver consistency of service at scale (we want to deliver new digital services fast but they need to be consistent experiences, re-using our learning, experiences and technologies, where possible).
- Promote the re-use of common technology components and capabilities – speeding implementation, saving money and reducing complexity.
- Apply shared values and practices.

A small example is illustrated here.

Asking a user for an email is something that many of our services will need to do. We should do this in a consistent manner every time we ask and each new service should not need to "invent" new ways of asking a user for an email address.

In fact, there are many good practices around asking customers for email addresses. For instance, ensuring there is an @ sign and a period in the email address, asking a customer to enter the email in twice to make sure they got it right, verifying the email address by sending the customer an email and asking them to click a link to confirm receipt.

These good practices can be built into a reusable component for collecting email addresses that all digital services should use.

This is, at a small scale, the concept that we are describing around service patterns – build once, re-use many times – saving time and attention that can be focused on other important aspects of service design.

6.1.11. Adopt and Operationalize Service Design Techniques

As referred to previously in the Digital First section, service design is the practice of designing the whole experience of a service and is a practice employed broadly by government digital services around the world. Such an approach should be used by the Town in order to better understand its customers.

Service design does not have to be complicated. Frequently referenced by the UK Government Digital Service (GDS), service design should be "consistent not uniform". Some techniques are already being used within pockets of the Town – simple whiteboarding exercises can help visualize issues and opportunities and provide the opportunity to overlay internal/external pain points to help identify service obstacles. Again, TIS Business Analysts are optimally situated within the organization to be of great service to design conversations and should always be included when departments are considering digitization of services.

There are countless frameworks to facilitate more meaningful conversations – journey/experience mapping, persona development and user scenarios, mind mapping, storyboarding, etc. What is most important, is that these techniques and interactions be truly collaborative among a group of stakeholders who have different points of view and who have a predilection for action over planning.

This Digital Strategy sets out to embrace and operationalize service design practices based on the shared vision of digital – to work collaboratively to build and deliver end-to-end digital services that make customer and staff interactions clearer, simpler and faster. Further information on fostering a digital culture of service design can be found in the Organize and Resource Focus Areas section.

6.1.12. Conduct User Research and Testing

At the heart of all this work is the need to design services for the customer and importantly, from their perspective. Staff need to do a better job of engaging, listening to and learning from customers and incorporating these insights into service designs.

The Town's Customer Service Strategy includes a number of customer journey maps (pg. 20), that help provide insight into how customers access Town services and their experience in doing so. These efforts are especially applicable to digital services and should be used to guide service design efforts.

To design good services for customers, they need to be involved up-front in testing assumptions, prototypes and minimum viable products before they are launched. Growing confidence in evaluating ideas and co-creating with the community will lead to better solutions and services that better reflect customers' needs.

This is common – municipalities like Toronto, Mississauga, Philadelphia and Chicago have all worked with their communities in structured and unstructured ways to great results. Some have established community testing groups that are routinely canvassed to provide feedback as well as testing alpha/beta releases.

6.1.13. Apply Digital Standards and Assessments

Over the course of this project, there were a number of standards and assessments completed that the Town should continue to use on a regular basis. The 12 Digital First Principles should not only guide the development of digital services but also be used to proactively communicate expectations of fostering a digital culture.

The BPO and good services assessment should continue to be used to ensure that Town services are being designed with a Digital First mindset. The MOSA can be used to track progress of web services and the MTM can be updated to reflect changes to digital architecture. TIS Business Analysts can help use these tools to help track adherence to standards and overall progress improvements.

6.2. Focus Area #2 – Digital Workplace and Collaboration

A modern, digital workplace is a necessary foundation to provide great user experiences. Customers and staff need tools that are accessible, intuitive and easy to use.

Every effort should be made to shift the focus of resources who are currently supporting administrative processes to providing the more human elements of customer service. The right automated and integrated technology stack is one main component; the other – the commitment and follow through to evolve the digital workplace in response to how staff prefer to work.

Collaboration is the key to any successful digital workplace. Employees require the ability to work across (and break down) Town silos in order to connect, share information and collectively co-create. Value today is generated by applying diverse perspectives in order to solve complex problems.

In order to facilitate this approach, the Town must build a culture of collaboration by curating opportunities for innovation and learning and providing the tools required for employees to team up and work together.

Traditional Work Environment	Modern Work Environment
8:30am – 4:30pm culture	Work anytime
Work happens in the office	Work is not a place – it embodies the freedom to work from anywhere with Wi-Fi, mobile data, etc.
The organization chooses and supplies your desktop computer	Choose the device(s) that work(s) best for you (CYOD)
A corporate-issued cell phone (BlackBerry)	Choose your smartphone, apps, Bring Your Own Device (BYOD)
Landline, voicemail, limited conference bridge availability	A single device, voicemail to text, instant messaging, video conferencing for all, work chat and social
Face-to-face meetings with paper-based agenda and meeting notes, written up and distributed after meetings	Accepted practice to hold and attend digital meetings with real-time, digital action lists and collaborative digital note-taking
"I'll have to check that and get back to you"	“I'm looking at it now and the answer is 42”
Email and serial Word document sharing collaboration, including complex versioning and tracked changes and compilation of final documents	Digital project spaces allow for easy team working, task and schedule management, list and document sharing. Real-time, notification-based, multi-user editing environment, facilitating cross-functional collaboration
Files and folders with access controlled by IT, difficult to share with partners who don't work at the Town	File management access controlled directly by authors, sharing easily enabled for people who do not work at the Town
Approvals, requiring a physical signature from a supervisor	Digital, real-time workflows that can be approved anytime, anywhere on any device using digital approvals

6.2.1. Define the Roadmap and Implementation Plans for M365 and Collaboration Tools

Plans are in place for Microsoft 365 to be implemented as one of the core Enterprise-wide platforms. This Cloud-based collaboration solution will replace various separate systems that currently run for email and calendaring, file storage, video and voice conferencing, chat and various other functions.

M365 will allow all staff to better communicate and connect across devices, from anywhere, at any time. It will help improve remote and flexible working. It will help to share and collaborate without friction across current departmental silos, with partners, customers and vendors.

A proper roadmap is also a necessary tool to assist with buy-in and change management throughout the implementation process. M365 is highly anticipated by Town staff, however, it will still represent large scale change that will take some planning, additional staff, additional investments and time to adapt to. There should be an engagement plan developed using the M365 roadmap as a tool to help communicate the rationale behind the change and to model what the future state will look like post implementation.

A clear implementation plan will need to be developed to sequence implementation work and then execute on that roadmap. External resources should be retained to drive deployment efforts. Internal resources will be required to manage and maintain these systems so consideration also needs to be given to capacity within the organization to provide support and enhance the capabilities of the M365 platform following the initial implementation.

Although a more detailed evaluation needs to inform the implementation plan, the Town should rollout features through phased and incremental releases. This helps the organization understand and adjust to the changing tools. Phase 1 should likely focus on replacing email and calendaring and should introduce MS Teams. A Phase 2 rollout can deliver features like SharePoint, OneDrive and Skype for Business but an assessment should be done toward the end of Phase 1 to prioritize features based on need and capabilities.

- Digital transformation is helping to shape municipalities and job roles to meet new challenges and opportunities. Additionally, municipal leaders have realized the benefits of “Cloud” strategies and continue to migrate workloads from traditional IT infrastructure to third party Cloud services at an unprecedented rate. As digital technology and the Cloud continues to improve and drive the economics of business, it also requires new and existing professional skills to be deployed in new ways. With the move to Cloud systems, the Town needs to recognize that a shift in IT and non-IT skill requirements will be required to support the Cloud journey.
- Additionally, the security risks that threaten a traditional on-premise data centre and network change once applications move to the Cloud, whether in a complete migration or in a hybrid scenario (some applications move to the Cloud while others remain on-premise). In many ways, the security risks faced when moving to the Cloud become more significant, however, with proper planning, the Cloud makes managing data security much easier. Rather than managing every

aspect of data security controls onsite, the Town can effectively out-task data security needs by leveraging expertise and tools provided by Cloud providers.

6.2.2. Undertake a Mobile Technology Needs Assessment – Support for Flexible and Mobile Work

With the eventual return to a “new normal” post-pandemic, everyone will need to learn how to adapt to a hybrid, less office-based working environment.

Technology can support this increased flexible working while continuing to support a work-from-anywhere approach where it is right to do so. The Town needs to plan the adequate deployment of technology to support agility and ensure that staff can leverage the solutions available to them. An organization-wide assessment should consider a range of Town users from engineers who are working from home and require computers with enough power to run CAD systems adequately, to front line administrators who simply need access to systems and workflow to support customer transactions.

The Town should also review the needs of its field-based operations (e.g., building inspections, site surveying, maintenance crews, first attenders, etc.) who are now increasingly in need of mobile technology that allows them to seamlessly interact with back-office systems in real-time. This will allow them to connect and interact with solutions in a secure manner, access information without needing to return to the office and use the devices that support their mode of working (Toughbooks, ruggedized laptops, etc.).

The Town is on a path to implement ERP, CRM and WAM systems in the future. These enterprise solutions will be designed to facilitate mobile work. This is the future for the Town. At the present, however, there are still mobile technology needs that must identified through a needs assessment and addressed through an ongoing mobile technology lifecycle program.

6.2.3. Proceed with Digital Approvals and Electronic Signatures

“Wet-ink”, handwritten signatures are rarely required in today’s world.

In most cases, they still exist because the associated process has yet to be digitally automated. Unless legally required, electronic signatures (or eSignatures) and approvals are preferred because they are more efficient, simpler to use and can scale out in order to provide the level of security required.

The Town needs to move forward with digital approvals and eSignatures because it will make it quicker and easier for staff to authorize forms and transactions while delivering a better overall user experience. These advancements lower transaction costs, allow for better tracking / auditing of workflows and improve records and information management practices by providing better access to approval information.

Pilot programs focusing on a particular process area are a good way to get started with this work, learn from the implementation and carry through that learning as the work scales out to other areas.

Some Town staff noted that, during the Covid shutdown, they still had to routinely come into the physical office to approve and disperse approval documentation. This can be avoided by digitizing approvals as a component of workflows and using a digital solution to manage digital signatures in the few instances where they are deemed required.

A close evaluation of the needs surrounding "approvals and consent" should conclude that most internal processes can simply be approved rather than signed. The PIPEDA and the ECA both recognize electronic signatures as "evidence or proof" of approval, leaving very few exceptions that require a wet-ink signature.

Some automated processes are already in place as a result of Covid (and even prior to that). The Town should assess what processes and technologies are currently in place and create a corporate standard to ensure consistency and that any technologies are leveraged to the highest degree possible.

6.3. Focus Area #3 – Service and Process Transformation

Well-designed, standardized and digitized processes are the foundation of a well-run organization. Business solutions enable the operation of these digitized processes.

Ideally, workflows are designed to take advantage of modern capabilities but in order to do so, it is important to ensure that they are well-designed, actually in place and understood by all.

Technology-based business solutions enable processes to be digitized and automated which enables staff to better deliver their work at an adequate scale.

Explainer: The Value of Process Digitization

The best run organizations rely on a combination of **people**, **processes** and **technology** working together in a synchronized fashion, to deliver exceptional services to customers.

What do we mean by "digitization" or "process digitization"? In the past, we may have called this computerization or automation.

When processes are digitized, all necessary transaction processing – workflows and tasks, notifications and quality checks, validations and approvals – can be carried out digitally using a computer and can happen anywhere and anytime: in the office, at a worksite, in a truck at the side of the road or from home, morning, noon or night.

Offline steps related to tracking and planning of work activity (e.g., manual interventions such as updating or checking a paper file or getting a physical signature) are removed.

Common business solution platforms are shared or integrated in ways that allow tasks initiated or completed in one team or one system to automatically trigger a task for another team to be completed in another system.

The digital process chain provides complete visibility and the ability to audit the process throughout the organization. For example, an authorized member of staff can easily check on an asset's work history, review a job plan, review previous actions or find out the required information without needing to search for a paper file or make a call.

Using these systems, data can be captured once and then used and shared many times, eliminating wasteful and error-prone duplicate data entry.

Systems can manage the routing and workflow of processes, assignment of activities (including escalating items to senior staff and management when exceptions are encountered or where performance falls below defined service levels).

Digitization allows the tracking of team and workgroup processes and monitoring of Key Performance Indicators (KPIs) that provide insights to improve process effectiveness, allowing for a more effective allocation of organization resources.

When processes are digitized into robust business solutions, all necessary transaction processing can be carried out digitally and occur anywhere. Offline steps (manual interventions such as checking a paper file or getting a physical signature) are largely reduced to the point of elimination. Again, TIS Business Analysts are ideally positioned to assist the Town in these modernization efforts.

6.3.1. Build BPO (as Demonstrated Through BP and MoC) into the Front-End of All Future Projects

Perry Group performed two BPO exercises with the Town. The first was for the Building Permit process and the second was for the Members of Council call tracking process.

The BPO exercise identifies opportunities to improve the current processes before they are digitized. We recommend that the Town use the learnings from this exercise and operationalize BPO practice for future major technology implementations.

The idea is "don't automate a bad process".

The Service Design and BPO methodology draws on various tools and techniques and a typical BPO project includes the following simple 4-step process.

- **Step 1** – Determine the criteria to use to select the processes for review and evaluation and select the "Top #" to be reviewed as part of the engagement.
- **Step 2** – Identify key stakeholders and conduct information gathering and discovery of background information.
- **Step 3** – Conduct as-is workshops and create process maps and information sheets, identifying process improvement opportunities.

- **Step 4** – Conduct to-be workshops and create process maps and information sheets, identifying prioritized process improvement opportunities and recommendations.

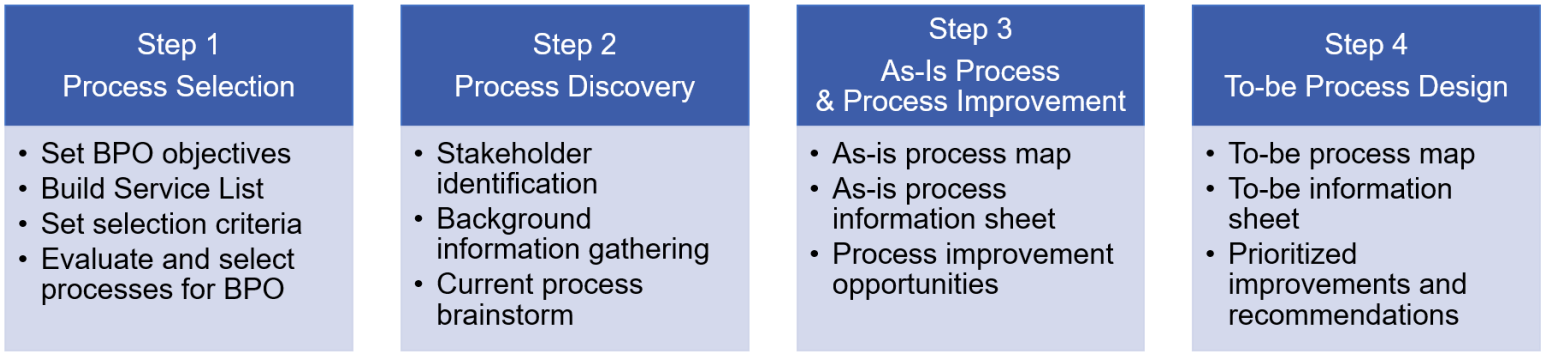


Figure 22: BPO Process Methodology

In order to implement a BPO practice within the Town, it is important that the staff (specifically the Business Analysts in TIS) are trained and the project implementation methodology is updated to include BPO at the front-end of the project lifecycle.

To refer to an example of a BPO exercise, see the BPO Building Permits section.

6.3.2. Complete ERP Requirements Gathering and Procurement

It is critical that the Town move forward with the ERP project – Project Wisdom – and implement a platform that will help to move away from the manual transaction processing that staff spend their time on currently.

The ERP project was identified as a priority business solution in the 2017 CITSP and later validated through the 2020 Health Check Report. Without automation of the "people and money" processes, the Town continues to expend more energy than is necessary, taking valuable staff time away from providing the human elements of customer service or improving business processes or participating in corporate-wide, Digital First projects.

The Town needs to move forward and implement self-service for staff and managers as well as automated and integrated processes for accounts management, invoicing and payments. This will, in turn, simplify and speed processing and free up Finance and HR resources from cumbersome administrative processes, allowing staff to devote more time to analysis, understanding operational pressures and supporting divisional needs.

An ERP will improve auditing capabilities, improve information management practices and vastly enhance financial and resource planning. There have been obstacles in the way of moving forward with ERP but the Town can no longer wait to deliver this critical business solution. The time is now!

6.3.3. Assess Cityworks for Work and Asset Management

The Town currently owns the Cityworks platform.

Cityworks is a Work Management solution that is only used in a few areas of the Town. The most prominent utilization of the tool is in support of external requests for information through MoC. This use of Cityworks is more akin to a case management or CRM solution rather than a Work Management tool. Even in this application of the technology, the system is failing to automate the associated process or provide usable information for Councillors.

Perry Group performed a BPO exercise to identify opportunities for improvement in relation to the current process. The detailed analysis and recommendations are provided in the MoC Request Management section.

In line with the Customer Service Strategy, a Town-wide CRM solution is far more suited to track MoC requests. The future CRM should be able to integrate with the back-office systems where the requests are seamlessly routed to the various back-office systems with the ongoing status updates from those systems routed back to the CRM. This provides near-real-time updates to all stakeholders. The future CRM should also have an online portal for citizens to self-serve and submit requests for information or work.

The Town must also review (the few) instances where Cityworks is utilized to manage maintenance to assets (such as within Engineering). In these cases, staff note that the application is often unreliable and does not provide for automated notification concerning status updates, etc. In most cases, complaints and maintenance tracking are logged into various disparate systems and/or tracked through Excel spreadsheets and MS Access databases.

Cityworks is not well regarded by Town staff but it has been primarily used as a CRM system, not a Work Management System. Within the industry, Cityworks is a fully GIS-integrated, Work Management System that is widely used and regarded as a good solution. The system is used by Oakville, Kitchener, Barrie, Sudbury, Niagara and York Region and other mid-sized Ontario municipalities.

Following an architectural and principle review of work management processes at the Town (Service Request, Work Order, Inspection, etc.) it would be logical for the Town to assess Cityworks against the requirements before looking for an alternative solution. Maximo and Cartegraph are alternative solutions that other mid-sized municipalities have implemented.

6.3.4. Reactivate the Amanda Public Portal Project (or Similar e-Permitting Solution)

The Amanda system used by the Town is in relatively good shape, running the most current version (v7) and has seen expanded use over the past several years.

That said, the Amanda public portal project was deferred by the business in 2018 and action should be taken by the Town to reactivate this project as soon as capacity and funding becomes available. Online planning submissions should be a key deliverable for the Town to provide a seamless one-stop-shop to its business customers.

If deciding not to move forward with reactivating this project, the Town needs to consider a similar e-permitting portal solution to support this process.

A key recommendation within the Building Permit BPO work conducted, is to implement a customer portal that provides centralized web access to services, service requests, online forms, payments, bookings and, if enabled, customer identity and login, account management and history.

When recommencing this work, the Town should consider the BPO to-be state and associated recommendations surrounding the Building Permits and MoC process requirements. Details of the BPO recommendations are available in the Building Permits To-Be Recommendations and MoC To-Be Recommendations sections.

6.3.5. Deliver Internal Digital Services

Similar to customer-facing services, it is important for the Town to automate and deliver self-service opportunities for staff.

Internal digital services will help to convert the high-volume, repetitive transactions and processes that staff must currently carry out into smooth, simple, self-serve digital transactions, reducing friction, speeding up processes and minimizing administrative overhead.

Every recommendation in this Report that applies to digital service refers to both customer-facing and internal digital services. In other words, proper service design, user research, digital principles and the Good Service Standard, etc. should apply equally.

A series of digital services should be implemented. The initiatives must be prioritized based on the volumes involved and the governance model (discussed later) will oversee this prioritization. For each, we will apply the Good Service Standard considering internal staff – users of the service – as the customer.

Some Cloud solutions are currently being utilized by departments, but oftentimes, value is not fully realized because manual interventions are needed to transpose information and data from processes or between systems. A good example of this is the gtechna (smart parking enforcement) solution. Inherently, it allows staff to issue tickets in the field which feeds into the convictions process, however, payment data must be manually transposed into another system to identify who issued payments as well as into Cityworks through a form builder collection tool.

In our experience, such issues commonly occur as a result of undefined or conflicting business processes versus the technology itself – especially in the case of Software as a Service (SaaS) and Cloud-based solutions.

This is only one example – of likely several – that could be reviewed to identify how to unlock further value for staff.

6.3.6. Conduct Integration Technology Planning

As previously noted and described in the Technical Architecture section, through different types of integration approaches / patterns, the Town can minimize the number of systems that staff need to use.

With the forthcoming ERP and CRM solutions, the Town must begin to adapt its current (and limited) approach to integration in order to plan for the future. These corporate systems will require a more detailed approach to ensuing optimal usability, application of technology standrads as well as to safeguard and provide better access to operational data and information.

External resources could be retained to help with planning efforts on behalf of the Town. Key considerations of this planning should include that:

- There is alignment alongside the modernization of business systems and technology infrastructure./
- The plan is flexible and adaptable for future needs.
- There are adequate resources in place to grow and evolve the approach / technology over time.
- Reporting requirements are considered from the onset to ensure the Town begins to better utilize data as an asset.

6.3.7. Conduct Application Rationalization and Consolidation

In light of major implementations in the near to immediate future (ERP, CRM, M365, etc.), the Town must move forward now to plan application rationalization and consolidation. Simply put, there are too many applications that require TIS support and not enough capacity to leverage them fully.

Technical debt is evident, with a number of legacy solutions (like MyWhitby) that have been developed to fill gaps in the existing solution landscape.

An application rationalization and consolidation plan would help reduce complexity (for TIS and users), increase the value and feature sets critical systems and, over time, reduce the total cost of ownership. The plan must be co-created by TIS in partnership with the business and should be approved by Senior Leadership Team / T3 along with architecture plans to ensure the evolving technology roadmap is supporting the most critical Town functions and services.

Technology architecture decisions, forthcoming enterprise deployments and business requirements should drive rationalization efforts. A more methodological approach should be followed.

To undertake an environmental scan and assess value to help make rationalization decisions, the following factors could serve as useful measures for the Town to assess:

Business Value

Business value represents the inherent importance of an application to achieve the goals of a business team or organization. Evaluation of business value should focus on the following factors:

- Solves a business need.
- Provides operational efficiencies.
- Provides critical function.
- Utilization.
- User experience.
- Revenue generation / cost savings.

Technical Health

Seeks to capture the technical integrity of the application and its impact to the technical burden of the organization. Evaluation of IT quality should focus on the following factors:

- Support.
- Data accuracy.
- Source code availability and quality.
- Reliability / security.
- Response time / ease of change.
- Technology.

Scoring the Business Value and Technical health can utilize a simple “stop light approach”, indicating whether the overall health is represented as either high, medium or low. Other factors such as the number of users, the investment involved to date, maintenance and support costs as the external support requirements necessary to maintain the solution, should all be documented. An evaluation of these factors upon completion should allow the Town to determine whether to tolerate, invest further or migrate away from each solution.

6.4. Focus Area #4 – Data and Security

If data is not actively managed, the overall utility of systems and information becomes less effective.

The growing reliance on technology solutions and the prospect of re-thinking how technology is used to fundamentally improve business performance has highlighted data management as a key capability for all organizations in the 21st century.

Historically, data has been collected for compliance purposes – it was gathered, routed and used once. This legacy approach to information management has now been replaced because it no longer provides enough value for the organization or the users it serves.

Next to people, data is now considered the most important asset an organization has. It needs to be fully leveraged in order to support empirical decision-making and utilized to monitor and improve internal processes and support service design.

Open government initiatives, along with greater public expectations around transparency, have clearly demonstrated the need to invest in a data program that provides easier access to information and a means with which to support better citizen engagement and participation.

Open Data, analytics, BI and information dashboards have now become the “new public platform” to support open, transparent government.

6.4.1. Develop a Cloud Policy

The Town has several Cloud solutions in place resulting not only in the need for more vendor and contract management but also for a policy and standards to be established.

Vendors will often suggest Cloud solutions are “easy to implement” and “don’t require IT’s involvement”, however, this is not the case. There are clearly responsibilities not only to ensure the security of access to Cloud solutions but also in protecting the data as well as the privacy of the information collected.

To build a modern, collaborative technology experience in 2021 – one that supports real-time collaboration with the ability to use mobile devices for field staff and remote workers, but also for office staff – is becoming increasingly dependent on Cloud technologies.

Cloud services provide convenient and on-demand access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services). The purpose of a Cloud Policy is to establish processes and procedures for Cloud service providers and their responsibilities and management strategies to protect the Town's applications and data.

It should be noted that many Cloud services are subscription-based pricing models. This makes it easier to spread out the overall costs of a solution or to scale up as needed however subscriptions are typically funded out of operating budgets. This can be a difficult decision during the budget process but a longer-term vision is necessary. Transitioning technology expenses

from the more traditional capital funding sources to operating is a challenge. The Town should plan for and prepare for this transition. Capital funding may still be required to support project implementations such as professional services or staffing, hardware and other technology procurement, but it is reasonable to assume that all software expenditures will gradually transition to this subscription model.

Cloud technology has expanded and allows almost any IT-related resource to be offered as a service. Taking advantage of these benefits requires that appropriate controls and risks are managed related to the Town assets, data and property.

Cloud technology is becoming very popular and is used in government at all levels. The Government of Canada has rapidly adopted Cloud technologies, adopting a Cloud-First Policy resulting in the ability to close down many of their own data centres. Cloud technologies provided a variety of benefits, including:

- Improvement in operational flexibility by leveraging the economies of scale in resources that Cloud service providers offer rather than building and maintaining relatively smaller scale, in-house resources in a data centre.
- Reduction in risk to the IT environment by using up-to-date hardware, application and software of the Cloud that ensures platform updates are scheduled and performed based on industry best practices.
- Improved resiliency through distributed processing, higher service availability and disaster recovery.
- Increased scalability to match IT resource capacity with business demand, more flexible solutions to meet changing business requirements and improved costs associated with technology utilization by only paying for the resources actually used.
- Improvement in agility to rapidly deploy new technology and digital solutions.
- Ability to optimize costs by more easily monitoring Cloud usage and consumptions.
- Fostering a culture of innovated technological solutions (digital transformation) to deliver better business benefits to both internal and external customers.

Further details regarding assessing Cloud solutions can be found in the Cloud Assessment appendix.

6.4.2. Finalize a Business Continuity and Disaster Recovery Plan (BCP/DR)

The Town made substantial improvements with respect to its BCP/DR posture throughout 2019/2020 with the development of a DR Strategy, however, a technical DR solution coupled with key components of the overarching BCP have yet to be completed. These activities should include the following:

- Departmental BCP strategies (partially completed).
- Tabletop exercise planning.

- Formal sign-off on all Recovery Time Objectives (RTOs).
- A technical DR solution to support the defined RTOs.

6.4.3. Develop a Cybersecurity Incident Management Plan

A recent survey released by IBM suggests that, while cybersecurity investment and planning are on the rise, effectiveness is not on the same incline with response efforts hindered by complexity caused by the use of fragmented cybersecurity toolsets.

The widespread use of “too many tools” may contribute to an inability not only to detect, but also to defend from active attacks. This trend emphasizes the need for organizations to perform a cybersecurity analysis in order to improve the return on investment (ROI) of a company’s financial investment in information security.

It is recommended that the Town perform a cybersecurity needs analysis which will help define the technology requirements. This work could be coupled with the development of a Cybersecurity Incident Response Plan (CIRP).

Once these activities have been completed, the Town will have a clearer understanding of the investment required to support the recommendations identified in the needs analysis.

The Town also needs to develop a CIRP that defines the following:

- Incident definition.
- Incident response team.
- Roles and responsibilities.
- Incident management strategy.

This plan will play a critical role in BCP/DR planning; specifically, tabletop exercises focused on cyber-attacks.

6.4.4. Create a Data and Analytics Management Plan (How to Leverage Data as an Asset)

Data and digital transformation are intricately linked. Leading organizations use data to derive customer insights and focus attention and resources on their most critical needs. Business Intelligence and analytics programs are driving evidenced-based decision-making and providing greater clarity with respect to operational and service delivery needs.

Data governance is the foundation of establishing high quality accurate data that the organization can rely on.

There is a lot of work ahead in this domain and the priority is to set out strategic directions. It is important to establish corporate data priorities and best practices and standards. There is the need to identify and set up data quality improvement programs across the organization.

Staff want access to better information – they want to use data and information to make decisions about how to improve services and simplify the way they work. The goal, similar to the approach with GIS, is to democratize access to data and data tools so that management and staff across the organization can easily – and in a self-serve fashion – combine, analyze, visualize and work with data from various sources to support data informed decision-making.

A Data Management Strategy would identify the data technology needs, define data priorities and work ahead to improve the quality of the most important datasets, as well as identify roles and responsibilities, skills requirements and required data education and training.

6.4.5. Undertake a Data Classification Program

The proliferation of unstructured data has presented a challenge for municipalities that hold sensitive information in the form of emails, spreadsheets and documents housed on file servers and file shares.

This data is quite often moved to the Cloud prior to setting policies and controls to formally identify and categorize information in order to ensure it is handled appropriately. This struggle with data lifecycle often results in the storing of sensitive data long after its usefulness.

When we consider the Cloud, due diligence must be performed prior to a Cloud migration and throughout the Town's Cloud journey. Systems are complex and always changing. Data may be duplicated for testing environments or archived and quickly forgotten.

The Town needs to develop a Data Classification Policy that defines classification levels and can be used as a starting point to manage datasets throughout the organization. This initiative should be tackled through a Clerk's and TIS partnership to ensure that corporate standards and objectives with respect to information management are fully considered and addressed.

6.4.6. Further Expand the Open Data Program

The Town has leveraged the ArcGIS platform to create a GeoHub Open Data catalogue with roughly 30 public-facing datasets. This work should continue through a corporate commitment to launch at least 10-20 new datasets every year.

It is also recommended that the Town engage potential partners like Durham Region, the Lake Ontario Conservation Authority and other peer municipal working groups to identify opportunities to federate Open Data offerings as well as sponsor engagement activities with residents, community technologists and other stakeholders.

Activities like Hackathons, data visualization challenges and data sharing events can help engage the community, lead to better quality data and develop new tools and visualizations for citizens to access information. The section Enter Into External Partnerships provides a range of potential partners who would likely be interested in working with the Town.

Municipalities can often grow their own Open Data programs in connection to strategic goals identified through broader community groups. Areas to consider for future publication are things like aggregate staffing and budget information, facilities management, community assets, permitting, planning and licensing activities, active developments, etc.

Open Data programs can create greater transparency, can engage new stakeholders and help develop strategic partnerships that can collaborate and co-produce value for the community. Most importantly, an Open Data program can be used to force a complete process for inventorying and sharing data, to effectively challenge a siloed and historically protective approach to data, privacy and security.

In some cases, municipalities have grown their internal data programs (ensuring quality, access, protection, etc.) from an Open Data program. Prioritizing which datasets should be in focus in each year can be done in partnership with the community by having citizens vote. Engaging the public about what they would like to see creates buy-in and fosters a sense of partnership with the community. This partnership can help generate better quality data that is more accessible to the Town and citizens.

6.4.7. Investigate Data / Integration Platforms

Data / integration platforms offer a large suite of tools and capabilities such as:

- A data warehouse (to support Master data Management (MDM)).
- Reporting and dashboards.
- Data profiling and cleansing.
- Extract transform load (ETL, tools to manage data migration between databases).
- Integration hub (ESB to automate and monitor integrations between systems).

While such a platform does not currently exist at the Town, some very preliminary use of operational dashboards is occurring.

This learning is helpful and should continue to demonstrate the value of visualization. With an ERP, CRM and other core systems forthcoming, the Town will need to consider formal requirements for a data platform / BI tool at some point in the next 3 years.

Data platforms make integrations easier to manage as they allow for automation of data flows between solutions based on business rules. This will require investment to support procurement of a solution as well as the skills and training needed to configure, implement and manage over time.

Much like a business system, there are various options on the market for data / integration platforms but all will require in-house expertise to utilize the technology most optimally.

7.0 Keys to Execution of Focus Areas

As the Town moves toward a digitally transformed organization, there are specific projects and deliverables that will have to be implemented. These are further defined in the Work Plan section. In addition to these specific tasks, there are a number of foundational areas that are key to achieving this vision.

Two foundational areas that the Town should focus on are fostering a Digital First culture and engaging in work through active partnerships. The second is increasing the capacity of the organization to increase the speed and volume of technology and digital projects.

We feel that a proactive focus on the following are essential to delivering on the Focus Area work as well as building the core competencies of the Town to become a Digital First organization.

7.1. Commit the Town to Becoming a Digital First Organization

For the Town to truly become a Digital First organization, there needs to be collective commitment by SLT, leaders and service owners throughout the organization to keep everyone accountable and on target.

Recommended commitments have been compiled into a Digital Declaration. The principles of this commitment are to:

- Be customer/user-centric.
- Lead on digital.
- Be data obsessed.
- Work in the open.

These characteristics need to become organizational core beliefs. Leaders need to foster a culture of curiosity, experimentation and collaboration. All staff need to reinforce empathy for customers on the part of service owners.

It is intended for the Declaration to be signed by all executives, directors and service owners to signal intent and acknowledgement that they all share the same beliefs and are aligned in supporting the Digital Mission.

7.2. Develop Increased Tech Savviness in Business Leadership

To become a more tech savvy municipality that better leverages technology, the current and future leaders of the Town need to understand technology, the potential of digital and how to successfully implement technology and digital-enabled change.

This does not mean that leadership must understand, at a technical level, the details of the technologies. It also doesn't mean *"being good with computers"*. Mostly, it means that leaders have a good conceptual understanding about what it means to be a digital organization and how to be successful implementing digital and technology-driven change and capabilities.

We suggest that a digital education program be instituted at the Town to help leaders and managers fully understand and embrace the potential of technology and understand what it takes to realize the promised benefits.

As part of Perry Group's engagement with the Town, several digital literacy sessions were held with a cross section of staff. At these sessions, much of the information contained within this Report.

The proposed governance model that sees SLT more actively involved in technology initiatives and decision-making, is part of a concerted strategy to increase institutional knowledge and learning through active participation.

7.3. Remodel Business and Work Planning Intake Process

The Town is developing a program for annual Business Plans and Work Plans. This process is intended to help in corporate decision-making regarding budget and resource planning.

Departments submit both technical and non-technical future projects that are needed to support strategic, master and/or operations plans for consideration during the budget process. It is important that the capacity and resources of the TIS Department as well as the business departments be considered before any new projects are approved.

Most projects have some technology included whether it's direct or requires integration or requires data inputs or outputs. It is advised that the Town enable a review by either TIS or T3 (or both) to determine if there is a potential interaction required. This review will help to identify technology or resource requirements and potential impacts on existing or future planned projects.

This CITDSP identifies potential projects and workplace impacts over the next few years. Longer-term planning will help to identify needed funding, people, technology and other resources but it should not eliminate the possibility of new projects moving forward. New mid-year projects can be disruptive to existing project schedules and should be considered carefully before being approved.

Consideration should be given to undergoing a business process review and optimization of the project submission and approval process. This would clearly define not only the process itself but would also identify roles and responsibilities of the different stakeholders.

Ideally, the business plan (or business case) for any project that involves technology would be jointly developed with both the business department and TIS, thus ensuring full understanding of the technical and people resources required. T3 should be involved in the process, particularly for larger projects.

This collaborative approach will make sure all impacts are considered along with the expected benefits. In order to address mid-year projects that need to be addressed but weren't part of the original planning process, they should be expected to undergo a review against criteria. This criteria should established ahead of time and include factors such as alignment to Corporate Strategy, a Council directive or some other extenuating circumstance.

Finally as part of the goal to improve overall communications from TIS, an updated list of approved projects and their status should be regularly posted and available for all staff to review.

7.4. Remodel T3 Governance to Provide Digital First Leadership

Whitby has a governance committee for technology, called T3. This committee has been in place for several years but has struggled to realize its mandate and responsibilities.

During the Health Check of the 2017 ITSP, it was found that "The constitution of IT Governance (T3) and the new project identification and intake tools have provided a much-needed process to help coordinate and plan corporate technology projects as well as improve their outcomes."

Technology governance, however, is a discipline that must evolve over time, adjusting to the new requirements of the Town. As new projects are implemented, capacity of both the business departments and TIS may result in a different decision being made. Having a corporate lens on issues and projects ensures the best decision is being made for the organization. Issues such as the ongoing escalation of cybersecurity concerns, the proliferation of Cloud solutions and the need to protect corporate data assets, means this senior level understanding and commitment is more important than ever before.

T3 was intended to aid the organization in aligning IT and digital activities with business and corporate strategy. It was about creating value by actively engaging the business to participate in technology decisions that impact the organization. It was meant to reinforce principles of collaboration, openness and collective decision-making by establishing a structure that oversees IT investment, business application needs, IT architecture and infrastructure decisions.

When it created T3, the Town realized that it was not a one-and-done – any governance model requires ongoing attention. Success is ultimately attributed to creating and sustaining value for all involved. This means that the model must continually shift to ensure mutual value. A recent initiative has been launched to do just this and is an opportune time to consider the rudiments to success for the next iteration of technology and digital governance at the Town:

- **Commitment begins at the top** – It is imperative to engage the executive and management teams, to ensure appropriate priority, authority and endorsement are available from the organization and that there is clear alignment with corporate direction. T3 exists to benefit the organization.
- **Accountability must be established and communicated** – Organizational sentiment will drive adoption of T3. With the backing of SLT, providing communication to stakeholders, transparency, consistency of process and reporting results will all help demonstrate accountability. Too many staff were unaware that T3 even existed – this needs to change if it is to provide broader value to the organization.
- **Alignment between T3 and the business** – Business value is best achieved if there is T3 alignment with corporate and business strategy. Having business represented and providing input to the portfolio prioritization process helps to foster a partnership and shared ownership for IT services.

In the 2020 Audit Plan Hot Spots Report by Gartner, IT Governance was identified as the top risk for organizations in 2021. "Abrupt work from home mandates have accelerated digital roadmaps, causing many organizations to vault years forward in the space of a few weeks. This move has spurred the rapid adoption of new technologies both on the employee and customer side, presenting new challenges to productivity, consumer preferences and guarding against security vulnerabilities."

Organizations often view decisions about technology as complicated, technical and "best left to the experts in IT", however, decisions about technology often have ramifications well beyond the technology itself.

Some questions to ask would be:

- How do we want to use technology in our business?
- What technology do we want our people to use and how do we want them to use it?
- How much should we spend on technology?
- Which of our business processes should we direct our IT dollars toward?
- What do we need to tackle first? Should we do this now or later?
- How secure do we want / need to be?
- What should be available first in the event of a data centre outage or a disaster event?

These are not decisions for the technologists in the TIS Department alone – they are important business decisions that the leaders of the organization must address.

There will always be purely technical decisions to be made – where the right technical staff with appropriate expertise will need to be involved – but in most cases, technology experts should be advising business leaders.

T3 is ideally positioned to have discussions around the leadership table about all these topics. This helps to ensure that people, process and technology are reviewed to help mitigate the risk of change. It also permits greater transparency in decisions that are made around policies and standards and also enhances the understanding of technology projects and the impact on staff and customers through changing business processes.

The Health Check identified that "continuous refinement of T3 will occur through regular practice and candid conversations with respect to the needs of those involved. Small, iterative improvements to make T3 more effective are already underway with a focus on the efficiency with which the group makes decisions and provides information to the rest of the organization."

This refinement will ensure that major IT decisions will be informed by value and risk to the organization, not simply by budget or who speaks the loudest.

It is recommended that the T3 mandate be modified to address the following concerns:

- Distribute technology and digital decision-making deeper into the organization and empower project and product teams to move faster.
- Establish improved collaborative and partner working across the organization, engaging executives, service owners and technology teams.
- Improve alignment between service delivery and technology delivery.
- Improve decisiveness and speed decision-making.
- Expand and share learning about successful technology and digital utilization more broadly across the organization.
- Coordinate and tackle large scale corporate / cross-functional initiatives and challenges.

Other considerations for revitalizing T3 include:

- Refresh T3 membership – the current membership has been in place for several years. A refresh helps to bring new ideas and commitment to the mandate. The new T3 membership will oversee, support and guide work on executing this Digital Strategy.
- Steering Committees for specific technology projects should report to T3, ensuring the corporate oversight but also to ensure alignment with the Digital First vision and principles. Steering Committees should be established for key areas of focus, not just for specific projects or solutions. Each Steering Committee is to be made up of nominated Commissioner and Director representation from directly affected business units, alongside leadership and management resources from TIS.

  Note that, over time, additional steering groups may be required as new areas of shared purpose emerge. For instance, as work on asset management moves forward, perhaps significant work will be required around Work and Asset Management systems and processes – in such case a Work and Assets Steering Committee may be convened.
- Ensure that technology and digital projects are fully integrated into broader work planning for the individual departments and the corporation. For example, TIS should be included in corporate business plan/work planning exercises. IT is currently looked at as “separate” and brought in after the fact. This has potentially significant impact to workloads and other project schedules.
- Leverage core platforms to the fullest by following the “re-use before buy, buy before build, build to re-use” adage. This is important to protect the Town’s investments in technology but also to prevent duplication of solutions and data, as well as work.

- Relationship management between TIS and the business departments needs to continue to grow and become more effective. Areas such as communications and sharing what projects are underway will help improve understanding and transparency.
- Address and support TIS policies that have a corporate impact. Policies such as the Cloud Policy and an Internet of Things (IoT) Strategy (smart sensors, etc.) each have impacts on privacy and security.

Currently, some staff are confused or unaware of technology governance at the Town. Those who knew of the entity questioned how it evaluated priorities on behalf of the organization and inquired on how to directly participate or learn more about it.

Governance is something that must be regularly reviewed to ensure it is generating value to everyone involved. A more detailed review would be required in order to provide specific recommendations on how to improve technology governance at the Town, however, the following are observations that could help support such a review.

- More of a focus on decision-making is required.
- Reporting needs to be succinct and tied to predetermined criteria that facilitates the group in making apt decisions.
- Greater transparency is required.
- Decisions need to cascade through the organization in order to ensure that everyone understands what priority technology projects have and how they are progressing over time.
- Project teams should be replaced by standing program teams to support continuous improvement of both enterprise systems (Amanda, ERP) and programs of work (IM, GIS/data etc.).

7.5. Organize and Resource Focus Areas

There is much work ahead for the Town to catch up on – especially in respect to work on business systems and customer-facing services.

Resources need to be organized and planned appropriately to ensure the Work Plan can move forward unencumbered. In order to do this, there are a couple of concepts the Town could consider.

7.5.1. Product Management

Explainer: Product Management

In contrast to a traditional project management approach, product management is concerned with the entire lifecycle of a product. The Product Manager cares about the vision, its execution, the reaction to the vision (even if an internal market), the health, care and feeding of the product, as well as the product's eventual sunset or replacement.

The Product Manager handles defining – in detail – the product to be built and validating that product with real customers and users.

For key platforms, TIS needs to proactively work with business leaders to lead and manage the platform roadmap and to drive continuous improvement and product evolution.

Product Managers will be responsible for leading work on the product roadmap and helping the Town fully utilize the capabilities of the platform. They will work closely with a cross section of the operating area who will help identify business needs and priorities, sequencing of work as well as evangelizing re-use.

The Product Manager can advocate through partnerships and make recommendations to help inform the Town on how best to sequence priorities in relation to strategic initiatives, an architectural roadmap, solution capabilities and digital service requirements.

Additionally, the Town should establish regular product funding streams for major platforms to support continual evolution, rather than relying on a project funding approach.

The Town is about to embark on two very large corporate projects in ERP and (eventually) CRM. These are perfect opportunities to approach them through a product management mindset and ensure these solutions continue to develop the capabilities required to deliver value to both staff and customers.

7.5.2. Digital Delivery Teams

The Town's goal is to move faster in delivering new solutions. Digital Delivery Teams can assist with this by committing a complete focus on a problem or opportunity rather than working off of someone's desk. Digital, GIS and data domains are well suited to Digital Delivery Teams who operate with a user-driven, agile, product-centric mindset.

In the digital space, the Town should use Digital Delivery Teams who can more easily employ agile approaches to deliver faster.

Digital Delivery Teams are small and focused, collaborative and empowered. They are multi-disciplinary groups of people with a mix of skills, experiences and perspectives. They are to lead the re-design of services in the Digital First vision. They will use

and embody the new methods we have discussed – user research, service design, digital delivery and agile. The learning developed in these teams will be shared and gradually brought to other parts of the Town.

A common framework for membership revolves around a core team of three:

- Service Owner / Manager / DRI.
- Product / Project Lead.
- Business Analyst.

Further roles that assist Digital Delivery Teams can be internal or external resources retained only when needed:

- Systems Analyst / Developer.
- Subject Matter Expert.
- Designer (UX).
- Communications / Engagement (if not managed by Product / Project Owner).

7.5.3. Foster a Digital Culture

While this Digital Strategy is strong, culture is a key determinant in the success of digital transformation.

To become a Digital First organization, a digital mindset must become pervasive throughout the culture; one where Councillors, leaders, service owners and teams genuinely think ***Digital First***.

It should be recognized that digital is not something that TIS can do for or to the services and business units – it needs to be an all-in, all-encompassing approach from top to bottom in the organization. So, everyone must all become more digital savvy, more curious and open to digital opportunities, as well as more ready and accepting of change.

It must be a deliberate and definitive change in mindset.

Work on the changing the digital culture can be done in the following ways.

7.5.4. Digital Education

Establish a digital program providing targeted education courses for leadership, management and staff around important digital concepts, service design, agile project management, design thinking and other key topic areas.

7.5.5. Digital Training

Ramp up your offerings of digital training for staff on new tools and capabilities as they are introduced, through projects and digital “Communities of Practice”.

7.5.6. Hire for Digital Aptitude and Capability

Take the opportunity to review the digital skill requirements of all job roles and update job descriptions to ensure that all job roles include modern digital skills and capabilities appropriate to the role.

7.5.7. Be Clear About Service Ownership Role

In the Digital First mindset, be clear that, going forward, service should be digital and in the Digital Declaration it is explicitly stated:

“We challenge all service owners at the Town – whether they provide services internally or externally – to meet our aspiration to design your services to be Digital First.”

Service owners are then accountable for delivering their service digitally. As a result, the service owner has a proactive role to play – not as a figurehead but as someone who is actively guiding and evangelizing the realization of the business capabilities as well as eliminating the barriers that impede achievement.

7.5.8. Review the Approach to Innovation

While status quo may not be as effective or as customer-centric as desired, in practice, change comes with inherent risk and so there is the tendency to hold onto the status quo.

There is the need to challenge the status quo and make it easier for good ideas to flourish, to ensure that teams understand the readiness to change, to push the boundaries, to do things in new ways.

As a result, leaders, managers and supervisors should consciously check their biases to safety and be willing to challenge their assumptions, listen to customer feedback and encourage teams to be bolder and to challenge the status quo.

Leaders should also consciously encourage innovation by promoting a culture that rewards and recognizes new ideas. Innovative organizations provide safe environments where it is acceptable to challenge the status quo and have pathways where ideas can be catalyzed, assembled, tested and deployed.

Various ideas can be explored – a “Dragon’s Den” model, ideas of the month, recognition blogs, innovation funding streams, brainstorming workshops, etc. are all models that should be considered.

The policy review should also help create an environment within which *all* staff can experiment and try new things.

Empower Teams – Push Decisions Down, Not Up

The governance model is designed to push decision-making to specific groups with the required expertise and delegated authority.

Governance and leaders will also trust the project and delivery teams – empower these teams to do the right thing, to challenge the status quo and enable them to be successful.

7.5.9. Work Openly

TIS can catch the interest of others looking to do similar work. “Lighthouse models” need to be set up to serve as a beacon to the organization, signaling that digital tools and techniques are being used to experiment and learn, to deliver service improvements and to empower others to do the same.

7.5.10. Steal from Others

Municipalities share many of their successes and solutions with each other, including our peers and colleagues locally as well as in the GTHA and across Canada. Several have already tackled many of the things that are planned in Whitby.

Leveraging what others have done, putting more focus into learning from others, stealing good ideas, experiences and implementation approaches from those who have learned lessons that we have not, can be a key to success.

7.5.11. Embrace Agile and Iterative Ways of Working

Some of the projects are well-suited to more agile delivery modes.

An agile approach is suited to various digital, GIS, data and systems projects and creates fast, tangible minimum viable products for staff to react to as teams work in short sprints that are more flexible and responsive to change.

The Town adopted many of these practices on several projects during Covid that led to outcomes that would have otherwise been unattainable. TIS should plan to expand the use of agile methods to a larger range of initiatives going forward.

7.6. Invest in Digital and Technology Staffing

Broadly speaking, there is a need to invest more in technology and digital programs to move forward.

The Town operates below the Perry Group recommended ranges for Operating (1.62%) and Capital (2.57%) Budgets.

Staffing levels have improved somewhat to a higher level. When benchmarked against other Ontario municipalities, Whitby’s investment in IT staff is still overall on the low end of the range and extremely low when compared to other industry leaders (banking, for example) to which government is compared by our customers.

Without doubt, there is the need to grow investment in technology and digital resources and the development of new skills and capabilities if the Town is to move forward in the way they intend.

Another way to increase TIS capacity is by moving resources around. As BPO projects get successfully implemented and resource savings are created, some of these resources should be shifted to TIS to secure, manage and monitor the new technology solutions that are creating these efficiencies.

7.7. Modernize Technology Procurement Methods

The Town should explore new opportunities to make procurement of technology easier and more effective. The approach to identifying and selecting solutions, partnering and teaming with vendors and consultants, needs to adjust to reflect the learnings from colleagues in other municipalities, provincial and federal governments. Modern procurement methods identified by the Municipal Innovation Exchange (MIX, among other opportunities) should be explored.

The Town should also investigate new, emerging ways to make purchasing technology easier. Civic accelerators and challenge-based procurement have gained a lot of traction over the last 4-5 years and are something to consider for the right kind of project. Small, lower risk digitization projects are an ideal starting point.

The Town has recently set up a Vendor of Record (VOR) for some technology purchasing. This idea can expand further through the use of pre-qualified rosters for particular areas of work aligning to Town work plans.

In order to continually engage with smaller vendors and community technologists, the Town should also consider holding demo days, where dealers can convene with Town staff, understand their challenges and provide information on the services they provide.

Relationship management with vendors and potential solution providers is a critical element in the delivery of today's IT. For innovation to occur with respect to procurement at the Town, there must be a pre-defined commitment from management, Finance and Legal as it can only occur through a collaborative effort.

7.8. Improve TIS and Business Relationships

Staff throughout the organization have an extremely high opinion of TIS and the service they provide the Town. This was a constant throughout all of conversations and assessments.

In fact, many indicated that they simply wanted more help from TIS but appreciated that capacity was simply not there. While it is agreed that more funding and more staff would be advantageous, there are other ways for TIS to engage more actively with Town departments in order to better understand and service their needs.

Some of the following examples were introduced to the Town by way of the 2020 Health Check Report. Workshops were held with TIS. The following are ranked in priority order:

- Hold information days focused on demonstrating systems, platforms and tools used within the Town to help educate other areas about what is possible within the current technology landscape.
- Host lunch-and-learns, hold information sessions or record vlogs to be posted on the Whitby Wire that provide staff with a better understanding surrounding the intent and value of utilizing the project tools and processes in place.
- Formalize a client services approach to completing the project intake form. TIS currently holds meetings with staff (upon request) who have ideas and need support on how best to translate an idea into a project. This practice should continue to evolve in a more proactive manner by engaging departments to hold ideation meetings with a specific focus on how current technology solutions might be used to meet their business objectives.
- Conduct more shared-service reviews (like the TIS-HR LEAN review of onboarding/offboarding) within Corporate Services to co-produce workflows that support a consolidated approach to back-office needs and make work easier to manage for other areas of the organization.
- Continue holding regular service reviews between business units and TIS to proactively review IT service delivery as well as discuss current and future planning. This practice has recently been initiated and is already strengthening ties. The Town must acknowledge, however, that these reviews will improve over time as each side begins to realize a focus that is mutually beneficial to each.
- Hold an annual engagement exercise to consult with every department in order to develop/refine each department's ongoing project list. This is also a good opportunity to discuss and consider whether third party resources could be contracted to help support (or fully deliver on) certain projects.

7.9. Improve Transparency and Communications About Technology and Digital Projects

Many staff feel that they simply do not know enough about the current technology projects and priorities for the Town. This is a responsibility of both TIS and T3.

Radical transparency is needed within today's municipal organizations due to the exponential growth of technology. The Town recently revised the job descriptions for Technology Analysts to include components of relationship management support.

Many organizations have gone further to create net new Relationship Management divisions within their IT organizations with new hires that possess the ideal skills and aptitudes. Often, these positions are designed to be embedded into other departments to gain firsthand insights into their technology challenges and opportunities.

Business Relationship Managers (BRMs) serve as translators for IT work but they also gather valuable intelligence that can improve how decisions are made regarding investments, resource allocation and strategic alignment. TIS and T3 may consider a number of other opportunities to help improve communications regarding technology plans and priorities, such as:

- Be a Relationship Manager for a day. Supervisors, analysts and technicians can all be given a chance to be embedded within operating areas for a day or half day, shadow staff in the field, attend department/areas-specific strategy meetings, conferences and events – all to get a better sense of how the business operates. This learning would be valuable to those in TIS who may not have had a chance to gain such a perspective.
- Further evolve the Whitby Wire TIS section to include monthly blogs by TIS staff regarding new initiatives, lighthouse examples and use cases from Town staff. These testimonials would help to translate other publications such as the CITSP progress scorecard, portfolio reporting, IT policies, guides and walkthrough documents.
- Streaming and/or recording portions of T3 meetings to allow staff improved access to corporate decision-making around technology. While publishing agendas and minutes from these meetings is helpful, these artifacts cannot capture the level of detail that is created through the conversations that take place.

7.10. Enter into External Partnerships

As noted in the Perry Group 2020 Health Check Report, the Town is situated in an area that is ripe with potential partnership opportunities. Adjacent municipalities (Oshawa, Ajax, Durham Region, York Region, etc.) as well as other levels of government can be active collaboration partners, especially in relation to GIS and Open Data initiatives.

Organizations such as 1855 Whitby, Community iLab Hub, 1V 1nnovation Village (new), Spark Centre and D-Hive could also be valuable community partners with shared interests around data and digital services. Ongoing programs like the myDurham Intelligent Communities Plan can help link in the Town to other willing partners as well.

7.11. Create a Vendor Management Plan

As noted in the Perry Group 2020 Health Check Report, it is worthwhile to review and document the various relationships the Town has with its third party technology partners. For example, Finance currently manages direct relationships with respect to Oracle (FMW) and Vailtech, which is advantageous as long as TIS is actively involved in how these solutions evolve over time and in relation to the broader enterprise technology landscape.

A Vendor Management Plan will not only identify who manages which relationships, it can also identify the roles and responsibilities each party plays in continuous improvement of the solution.

7.12. Appoint Directly Responsible Individuals (DRIs)

When working on projects across multi-disciplinary teams, it can be difficult to know who is ultimately responsible. The Town should begin assigning a DRI to projects. This can drastically cut down on the paradigm of deferred responsibility that can often be associated with large scale technology implementations that involve cross-functional teams. We recommend using this concept and terminology to support future digital and technology programs at the Town.

Every project can be assigned a DRI who is ultimately accountable for the success (or failure) of that project. Success is not simply the completion of the project or implementation of the solution, it is the achievement of the desired business outcomes – improved customer experience, new capabilities, increased efficiency, improved reporting and data management, and so on.

A DRI should report directly to the highest level of IT Governance. Ideally, DRIs should be business leads able to provide a process and service perspective to the project at hand. This will also serve to further entrench the notion of service ownership which assumes that all aspects of a service, digital or otherwise, must be continually monitored and improved.

DRIs do **not** need to be technologists. Instead, they need to have the ability to work with technology partners (TIS + third parties) to understand what barriers and opportunities are associated with realizing business outcomes and then translate them to their peers. An active DRI supported by a Project Manager and project team should be able to:

- Promote engagement and collaboration on projects to ensure varying perspectives and requirements are met early on.
- Help co-create the project mission and charter and reflect on it **regularly** (with big projects, the “why” can often be forgotten – remind people!).
- Document roles and responsibilities and make changes as they happen.
- Support project resiliency and respond calmly to setbacks and course corrections.
- Translate progress across the organization and to Council and SLT.
- Build frameworks and collect data to analyze project performance.
- Expertly communicate and find the answers you don’t have.
- Be open to feedback but make decisions when the time comes to do so.
- Inspire trust by leading by example (i.e., the DRI is driving the project).
- Think strategically but stay close to the details (task level).
- Assign new DRIs to cover the areas you can’t, but ensure they report back to you as the project DRI is where the buck stops!
- Pick up loose ends and predict where resource issues, budget and performance might lead to barriers.

- Be open, transparent and ready to arbitrate against competing business needs.
- Leverage strategic relationships across the organization in support of the project.
- Think about the future state – install a framework and plan to measure success following the project.
- Facilitate and document the learning from a project to help sustain continuous improvement and inform future projects.

7.13. Use a *People, Process and Technology* Lens to Manage Change

Given the pace of technology, it's easy to be sold on the prospect of new tools driving digital transformation.

Clearly, we realize that technology plays a critical role in supporting Digital First, but technology is very ineffective without the underlying processes and people to support it. We have seen far too many technology projects fail because there wasn't an adequate amount of attention paid to people and process. Real value and a return on investment is realized when all three facets are in unison – this needs to start and be maintained throughout the life of a project and following implementation. Too frequently, Town projects begin without an adequate understanding of what the business problem is and why it needs to be solved.

A combination of project management methodologies and the DRI model can help ensure that the right work is done up-front to define and codify the problem by those who will ultimately use, manage and consume the technology to address it.

People are the key here – frankly, nothing will work if the resources are either unavailable or uninterested. People need to buy into the value proposition for change so it's important to never lose site of the outcomes.

Change management is the driver to ensure that people are in place to support a process but, most importantly, they are also motivated and empowered to do so. A change management process should be part of any major technology and digital project to some degree. It can be as simple or as complex as a project group deems necessary, but ultimately, there needs to be pre-work completed in order to determine who and how people will be engaged throughout.

This starts with selecting the right people as contributors to the project work but also should include a plan of regularly communicating the prospective changes to others outside the immediate project team.

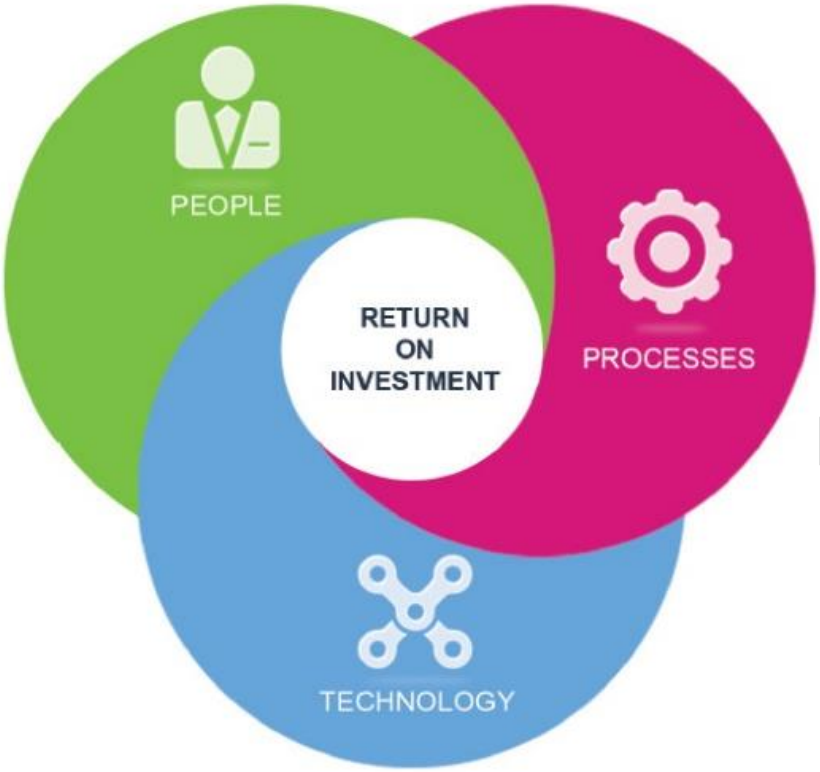


Figure 23: People, Process, Technology

Everyone – from front line users to decision-makers within the organization – needs to be considered because, at the end of the day, if technology is not used effectively, processes break down and people become demotivated and more likely to "do it their own way".

Many suggest that any process supported by technology should also be able to function in the absence of said technology. Clearly, the Town *wants* automation, it *wants* to get away from manual paper processes, however, technology alone is **never** the answer. By looking at a business process (or mapping one that doesn't exist) void of technology, a team can better understand the key attributes that will ultimately make it successful. Technology can enhance, automate and make life easier for the people using it – but technology cannot automate a process that doesn't make sense, or doesn't work manually.

In general, we recommend spending more time to set up and position projects for success rather than racing to start. And throughout a project, staff need to be reminded of the "bigger picture" to ensure they stay committed to the future state – which,

if designed properly, should save them time and money downstream as well as enhance the way they work. Yes, this can take more time to manage, but it's an invaluable investment that will lead to more engaged users and more refined processes that can optimally be improved by technology and automation.

7.14. Measure Progress

Developing this Strategy is the easy part. Ensuring that the Town can deliver on the Strategy's promises is where the real work lies.

One of the key themes of the Strategy is the importance of data and, following this advice, it is important to use data to measure the delivery of the Strategy.

Active measurement and reporting on progress against the goals and initiatives set out in this Strategy will be critical to success. Transparent reporting holds TIS, management, T3 and the senior leaders accountable, keeps focus and makes sure that, where there are headwinds or challenges, the issues are surfaced and tackled.

The following set of measures that can be used have been identified but note that there needs to be responsiveness over time, working with key stakeholders to evolve these metrics ensuring that they provide the value needed.

7.14.1. Measuring Focus Area #1 – Digital Services

To support the vision of a Digital First Whitby, annual targets should be set, thus ensuring that digital services are providing value to customers.

The following data can be used to measure the overall quality and effectiveness of digital services.

- The % of users who are satisfied with the service.
- The % of successfully completed transactions.
- The % of "hung transactions" (not completed).
- The average time of a service transaction (end-to-end).
- The cost per digital transaction against other channels.
- The percentage of digital services used over other channels.
- The # of user research processes conducted (annually).
- The # of customer service testing processes conducted (annually)In addition to these areas, further measures will likely need to be developed contextually around each service to measure specific components or program objectives. Examples of these are as follows:

- A digital service effort score (1-10 customer rating – taken through survey).
- The # of customer accounts (profiles) created.
- The volume of transactions plotted by time, day, etc. (seasonal variation).
- The % of transactions conducted by repeat users (versus new users).
- The % of first contact resolutions.
- The % of self-service options used.

7.14.2. Measuring Focus Area #2 – Digital Workplace & Collaboration

To measure success in creating a modern work environment, there is the need to understand how effectively tools and information are being delivered to staff as well as supporting a Digital First collaborative culture.

The following provides several metrics that we can use to gauge our progress:

- The % of staff who work remotely using digital tools for remote work.
- The % of staff who work remotely.
- The % of staff remotely connected to the Town's technology (systems).
- The % of internal digital services used compared against other channels.
- The % of internal digital services used compared against the % of all users.
- The # of internal self-services provided.
- The total # of internal digital-based transactions.
- Staff satisfaction with key systems (via survey – compare annually).
- Employee engagement results (through corporate or user targeted surveys).
- The % of staff accessing digital training and education courses.
- The # of video / voice conferences.
- The # of staff Wi-Fi sessions.
- Time tracking on core administrative processes.

7.14.3. Measuring Focus Area #3 – Service & Process Transformation

There is much work ahead in fully leveraging the current business systems to create efficient, end-to-end digital workflows. There are still solutions that need to be implemented which will eventually become core systems. Being able to track service and process transformation is critical to ensuring efforts are focused on the right opportunities.

TIS will commit to proactively testing new services with users and measuring ongoing effectiveness by accepting ongoing user feedback. The following metrics can be used by to report on progress:

- Project metrics prior to implementation (completion %, time, budget, variance %).
- SOP and SLAs up-to-date (annual review, audits).
- Business outcome and quality measurement (via customer feedback).
- Service availability (service interruptions, up-time %, average response time).
- Error rates (logged and thrown exceptions).
- Throughput and overall application usage % (daily/annually).
- Application usage over time, instance counts and request rate %s.
- User satisfaction (e.g., Apdex, net promoter score).
- Customer perceived service/process completion % (through feedback).
- The % of digitization of the process (end-to-end, regardless of systems).
- Required process capacity (historic staff utilization / actual staff utilization) x100.
- Operational costs to support process capacity.
- Cost avoidance (e.g., staff utilization vs. cost to implement).

7.14.4. Measuring Focus Area #4 – Data and Architecture

To ensure data is being leveraged as an asset to meet the Digital First objectives:

- The # of Master data sources in place.
- The # of data sources consolidated.
- The # of datasets under governance.
- The # of designated data stewards accountable for defined datasets.

- The % of data quality over time (based on consistency, accuracy, completeness, auditability, orderliness, uniqueness and timeliness).
- The # of service-based KPIs (public and internal).
- The # of Open Data sets available publicly.
- The % of staff that have completed data literacy training.
- The # of map interfaces internally available.
- The # of map interfaces publicly available.

8.0 Work Plan

The Town is currently undergoing a number of significant projects that are scheduled in the 2022 workplans. In acknowledgement of these projects as well as the corporate Business Plan/Work Plan process, this strategy has highlighted a number of initiatives for consideration. One of the recommendations was for the Town to become more agile and nimble with planned projects. Technology is changing rapidly as are customer expectations. New initiatives will come up all the time and the strategy needs to be flexible enough to accommodate these new solutions. It is recommended that TIS develop annual workplans based on the evolving needs and conduct annual reviews of the plan with this Digital Strategy to ensure alignment. As such, any financial or resource requirements will be developed on a project basis and submitted through the annual budget process.

The Strategy does contemplate the following initiatives with the five workstreams.

For each workstream, one to three priorities (highlighted in the table below) have been identified to help build momentum in each area.

Focus Areas	Main Priorities
Digital Services	Establish Digital First rudiments and foundation (standards, service design, partner with peers and community, etc.), deliver online services using existing technology, plan for CRM.
Digital Workplace and Collaboration	Plan and deliver M365, automate approvals and sign-offs, assess and deliver technology needed for remote and WFH.
Service and Process Transformation	Deliver ERP, expand Amanda, rationalize / consolidate applications, digitize Building Permit process, front-end BPO as part of all new process design work, plan for Work and Asset Management.
Data and Security	Develop a Cloud Policy, finalize BCP/DR, develop cybersecurity rigor, define / classify data and expand Open Data program.
Strategy Supports	Enhance digital and technology governance, improve business relationships, establish vendor and other accountability models, modernize technology procurement options, foster a digital culture and measure progress.

9.0 Conclusion and Summary

This Strategy represents a comprehensive response to the digital opportunities that can be built on the strong foundations that are in place and realize the potential of what can be achieved with thoughtful consideration. The Town wants to move forward quickly with many of these initiatives as they recognize the value of digitizing processes and service delivery. The Strategy has been developed to meet these goals and as such is aggressive and demanding. Considering several of the projects are already in progress, along with the Town's budget timeline, suggests that much of this Strategy will not be started until possibly 2023.

The Strategy is designed to focus attention on the key projects that have been prioritized and position the Town to focus on specific areas to successfully realize those opportunities and deliver digitally-powered Town services.

9.1. Follow the Strategy

Following this Strategy will:

- Ensure the Town can deliver consistent and positive services even more efficiently, building trust through transparent and open service delivery.
- Set standards and clear current barriers to digital delivery.
- Build a Technical Architecture that enables a Digital First workplace.
- Increase front-facing staff, back-office team and mobile worker efficiency and productivity through digital solutions.
- Support the Customer Service Strategy.
- Ensure that the Town can deliver services that meet the changing expectations of many of the Town's customers as well as being able to effectively scale services as the community continues to grow.

Any delays to the implementation of recommendations set out in this Strategy will result in delays to the realization of the potential benefits identified.

9.2. Summary of Strategy Recommendations

In summary, the Strategy recommends that the Town should:

- Adopt and communicate corporate-wide and clear strategic intent and vision for digital service delivery as the Town's primary platform for customer service – **a collaborative approach to delivering customer-centred, digitally-powered, re-designed Town services.**

- Ensure that all service owners commit to moving toward Digital First service as a priority through the adoption of the **Digital Declaration** and Digital First principles.
- Continue to **invest in infrastructure technologies** to maintain an effective lifecycle replacement of all technology assets while building toward a new model of technology architecture.
- Leverage centralized TIS to ensure focus on corporate priorities, application of technology standards as well as digital principles and security by design.
- Focus on work in the **four Focus Areas** below, making sure these foundational mission critical systems are fully implemented enabling the future architecture to be available for new and emerging opportunities:
    - Build digital services to deliver Town services that meet customer expectations.
    - Invest in the digital workplace and collaboration tools to ensure that staff and partners have access to modern collaboration tools that enable them to be productive and effective.
    - Digitize core services and processes as a top priority, focusing first on people, money, assets and work, land and property-centred and service tracking processes.
    - Provide the digital infrastructure, data and security to ensure that the Town is well-positioned to be future-proofed and cyber-secured; invest in data and analytics to ensure the Town sets the foundations for decision-making and optimizes its effectiveness and efficiency.

  Each of these Focus Areas include specific projects and tasks to be addressed but also include actions that will help to curate a **digital culture** and improve **partnerships** across all departments and with external vendors and stakeholders.

  It is important that new methodologies be adopted that help to increase the **speed and capacity** at which solutions are delivered, resulting in more noticeable successful implementation – improved **throughput**.
- Update and modify the terms of reference for the **Information Technology Governance Team** (T3) to commit to providing Digital First Leadership. The goals of T3 are to help keep the organization focused on strategic priorities, to enable shared learning and importantly, collaborative work on technology projects and the overall digital portfolio. The mandate of T3 should be revitalized and membership updated to reflect the current state of development and opportunity at the Town.
- Remodel the Business and Work Planning Intake Process so that it more clearly addresses technology initiatives that allow for appropriate levels of rigor by T3 as well as TIS management. This includes ensuring the potential for **BPO reviews, architecture commitment and compliance and resource capacity**.

- **Organize and resource** the four key Focus Areas to ensure the Work Plan can move forward to support the delivery of this Strategy and new digitally-powered services. This includes:
    - Consider **new resource responsibilities** such as the Product Manager, Digital Delivery Teams and the Directly Responsible Individual to help focus available resources on the solutions and implementation projects. TIS should continue to pursue alternate resourcing strategies (including capitally funding staffing, using rosters and increasing use of out-tasking) to add additional capacity to support the delivery of digital solutions.
    - Foster a **digital culture** by offering ongoing digital education and training, using new hiring practices to encourage greater digital aptitude and capability and embracing innovation and agile ways of working.
    - Modernize **technology procurement methods** that will allow for easier, faster and more effective ways to move technology projects forward, including building relationships with vendors.
    - Continue to work on building stronger **TIS / business unit relationships** through an enhanced communication plan and even greater collaboration to allow for improved transparency and openness about all technology projects.
    - Enter into more **external partnerships** leveraging others' work and learnings.
    - Use a **People, Process and Technology** lens to manage change by implementing a project methodology that spends more time early on in the project to engage staff and create buy-in and enthusiasm through effective change management procedures and communications plans.
- **Measure and report** on digital performance and successes.

Appendix 1 – Glossary of Terms

Term	Explanation
AMANDA	Permits, Planning and Licensing solution
AP – Accounts Payable	Invoice processing and payment
AR – Accounts Receivable	Invoice issuance and payment processing
ArcGIS	A family of client software, server software and online geographic information system (GIS) services developed and maintained by Esri, used to make maps, analyze data and share and collaborate.
Back-Office	An office or department where work is carried out to support the business of an organization, rather than being customer-facing
BCP – Business Continuity Plan	A document that outlines how a business will continue operating during an unplanned disruption in service
BRM – Business Relationship Manager	Serve as translators for IT work and gather valuable intelligence that can improve how decisions are made regarding investments, resource allocation and strategic alignment
CIRP	Cybersecurity Incident Response Plan
CITSP	Corporate Information Technology Strategic Plan
Cloud	A term used for IT infrastructure and services located outside of the corporate network and accessed over the Internet
CMS – Content Management System	A Content Management System supports personalization, manifests the user experience, handles management of web content and provides search and site navigation features.

Term	Explanation
CRM – Customer Relationship Management	A generic system for case management that can be used for handling customer enquiries. *Note that the C in CRM is used differently in many municipalities – Citizen, Client, Customer and Constituent*
CSR	Customer Service Representative
Customer	Refers to users of the municipality's technology and digital services, including residents, businesses, visitors, Mayor and Council, the workforce and our partners
Data	Information in an electronic form that can be stored and used by a compute, typically collected to be examined and considered and used to inform and help decision-making
Digital	Refers to a mindset, mode of operating, and delivery of services that takes advantage of modern technologies (web, app, social, mobile, data). These deliver improved experiences, business efficiencies and insights
Digitized	The automation of manual and paper-based processes, enabled by the digitization of information and workflows, moving from an analog (often paper-based) process to a computerized process
DR – Disaster Recovery	A set of policies, procedures and practices that are designed to assist an organization recover from a significant IT failure
DSbD – Digital Security by Design	To ensure security and privacy of software systems so users can use and trust technology.
ECA	Electronic Commerce Act
ECM – Enterprise Content Management	A system to manage an organization's electronic files throughout its lifecycle, ensuring files are retrievable, secure and archived.

Term	Explanation
ERP – Enterprise Resource Planning	A system that is designed to address business requirements across the whole organization
ESB – Enterprise Service Hub	An integration hub to automate and monitor integrations between systems
ETL – Extract Transform Load	Tools to manage data migration between databases
FOI – Freedom of Information	Freedom of a person or people to publish and consume information. Access to information is the ability for an individual to seek, receive and impart information effectively
GDPR – General Data Protection Regulation	A legal framework that sets guidelines for the collection and processing of personal information from individuals who live in the European Union
GDS – Government Digital Service	UK government's central digital agency; a world leader in the modernization and digitization of government services
GIS – Geographical Information Systems	Systems designed to capture and report on all types of geographical data, including spatial data
HR	Human Resources
IoT – Internet of Things	Broad term used to describe internet (or network) connected devices, sensors and controls
IT Service Catalogue	A comprehensive list of IT services that an organization offers to its employees and/or customers
LAN – Local Area Network	Internal private connectivity between municipal facilities and devices
MDM – Master Data Management	A technology-enabled discipline in which business and IT work together to ensure the uniformity, accuracy, stewardship, consistency and accountability of an organization's official shared master data assets

Term	Explanation
MHCLG – Ministry for Housing, Communities and Local Government	UK Ministry whose job it is to create great places to live and work, and to give more power to local people to shape what happens in their area
MIX – Municipal Innovation Exchange	A toolkit that helps local governments modernize public service through innovation
MoC – Members of Council	
MOSA – Municipal Online Services Assessment	Perry Group's generalized assessment to articulate a target state for the digital experiences that municipalities could, and arguably should, deliver to citizens based on industry best practices
PIA – Privacy Impact Assessment	A decision tool used to identify and mitigate privacy risks that notifies the public about what personal information is being collected, why and how it will be used, accessed, shared, safeguarded and stored
PIPEDA – Personal Information Protection and Electronic Documents Act	Sets out ground rules for how private sector organizations may collect, use or disclose personal information in the course of commercial activities.
REST-Based Web Service APIs	An application programming interface (API) that conforms to constraints of the REST architectural style and allows for interaction with RESTful web services.
ROI – Return on Investment	A performance measure used to evaluate the efficiency or profitability of an investment
RPO – Recovery Point Objective	Refers to the amount of data at risk (that could be lost) after a failure or disaster occurs; the maximum amount of lost data – measured in time – from a failure occurrence to the last valid backup
RTO – Recovery Time Objective	The maximum tolerable length of time that a computer, system, network, or application can be down after a failure or disaster occurs (i.e., how long it takes to restore to normal operations)

Term	Explanation
SaaS – Software as a Service	A way of delivering applications over the Internet – as a service, instead of installing and maintaining software
SLA – Service Level Agreement	Documented target levels of service (e.g., response and resolution timelines for incidents)
SR – Service Request	A formal request from a user for something new to be provided
SSO – Single Sign On	A session and user authentication service that permits a user to use one set of login credentials
T3	IT Governance Committee
TIS	Technology and Innovation Services (department)
UX – User Experience	Encompasses all aspects of the end-user's interaction with the company, its services, and its products
UXD – User Experience Design	A design process whose sole objective is to design a system that offers a great experience to its users
VoR – Vendor of Record	A procurement arrangement, typically established through an RFP, that authorizes one or more qualified vendors to provide goods/services to one or more organizations for a defined period on terms and conditions, including pricing, as set out in the VOR agreement
WAM	Work and Asset Management System
WFH	Work from Home
WMS – Work Management System	The system used for managing an organization’s work orders

Table 1: Glossary of Terms

Appendix 2 – Digital Declaration

Introduction

This Declaration affirms the Town of Whitby's collective ambition for services in the internet age and our commitments to realizing it.

It commits us working on a new scale to:

- Deliver to citizens better value for money.
- Design digital services that best meet the needs of citizens.
- Protect citizens' privacy and security.

The Opportunity

Never has it been possible to collaborate so effectively, to deliver services across departmental and jurisdictional boundaries, to use our data so insightfully, to realize efficiencies and to reshape services for the benefit of all using technology and data.

Some work has already been done to transform our services using digital tools and technology but there is a huge opportunity to do more.

Our Ambition

We want to create the conditions for the next generation of Town services, where technology is an enabler rather than a barrier to service improvements and services are a delight for citizens and officials to use.

We know that one size doesn't fit all, but by developing common building blocks, the Town will be able to build services more quickly, flexibly and effectively. Our ambition requires both a culture shift and a technology shift and we've agreed to the following four principles to help us do it:

- **Be customer/user-centric:** We will re-design our services around the needs of the people using them. This means continuing to prioritize citizen and user needs above professional, organizational and technological silos.

- **Lead on digital:** We will demonstrate digital leadership, creating the conditions for genuine organizational transformation to happen and challenging all those we work with to embrace this Whitby Digital Declaration.
- **Be data obsessed:** We will design safe, secure and useful ways of sharing information to build trust among our partners and citizens, to better support vulnerable members of our communities and to target our resources more effectively.
- **Work in the open:** We will embed an open culture that values, incentivizes and expects digital ways of working from every member of our workforce. This means working in the open wherever we can, sharing our plans and experience, working collaboratively with other organizations and re-using good practice.

Our Beliefs

As we build new products and services, we have opinions and preferences about what and how we should build. To fully embrace digital, we must be devoted to our customers, our staff and to the expectations they have for our organization.

We know and understand the latent potential behind end-to-end digital transformations and, as a result, hold the following opinions:

- We prefer digital over paper.
- We prefer data over documents and drawings.
- We prefer auditable workflow over email and messages.
- We prefer real-time over post-facto tracking.
- We prefer cheaper channels over more expensive ones.
- We prefer it if our customers don't have to come in to get stuff done.
- We prefer to re-use over buying new; when we need to buy new, we will be deliberate and decisive.
- We prefer self-service over gatekeepers.
- We prefer incremental projects over “big bang”.
- We prefer agile over waterfall.
- We prefer open (by default) over closed and proprietary.
- We prefer product evolution over projects.

- We prefer structured APIs over less modern integration options.

Our Commitments

Digital is the way forward and it will not be easy but the returns and value are already being demonstrated by organizations who have focused on digital as an engine of growth and improvement.

Digital and service are no longer mutually exclusive – they must be considered one and the same. We strive to consider digital **anytime** we design or improve a Town service.

This is a call-to-arms for all staff to do their part in making digital a priority in all that they do. As a signatory to this Declaration, you will commit to the following:

Our Leaders, Service Managers and Council Members Will:

- Make sure that digital perspectives and expertise are central to decision-making and that all technology decisions are suitably evaluated by the appropriate people. This will ensure that we are using our collective power to stimulate a speedy move toward change.
- Be visible, accessible leaders throughout the organization, championing our Digital Vision and always be willing to share data across program areas (unless explicitly prevented from doing so by legislation).
- Support our workforce to share ideas and engage in the identification of digital opportunities by providing the space and time for this to happen.
- Publish and commit to our plans, share lessons learned, celebrate successes and talk publicly about things that could have gone better. These are opportunities to learn and grow and are deserving of our constructive attention.
- Try new things and look for opportunities to try new things in collaboration with other organizations, the community and external partners.
- Never be satisfied with the status quo – there is always opportunity to improve the way the Town delivers services.

Our Workforce Will:

- Be open to process and technology change.
- Proactively share our service plans and goals with TIS to ensure they understand the problems we are trying to solve, giving them an opportunity to provide advice on how technology might help with people and processes.
- Keep our customers and users top-of-mind, doing the hard work behind the scenes to ensure that customer and staff experiences are simple and easy.

- Identify and share opportunities for improvement with peers and managers – converge on ideas that have maximum value for the organization.
- Not attempt to boil the ocean but instead, start small, experiment in low-risk situations, iterate based on data and testing and continue to scale out accordingly.
- Learn from the success of other organizations (public and private) and challenge the status quo to continually explore opportunities to incrementally grow and improve.
- Have the “difficult” conversations that may arise when challenging others, using this Digital Declaration to reaffirm the organization’s commitment.

Our Technology Team Will:

- Share knowledge about digital projects where there is an opportunity for potential re-use or collaboration with others.
- Proactively engage and collaborate with service areas, ensure that every new technology or digital solution procured fits into our architecture, is secure and puts us in control of our data.
- Work together to establish the frameworks we need to safely analyze and share personal data. This will allow us to better serve our shared customers and reduce the need to ask citizens for the same information multiple times.
- Always consider the user first by highlighting the importance of self-serve functionality, user transparency and continuous feedback.
- Take inspiration and ideas from a wide range of sources and participate individually in Communities of Practice and interest outside the organization.

_____

Signature

Note that this Declaration is modeled after an initiative led by the UK Ministry for Housing, Communities and Local Government (MHCLG), the Government Digital Service (GDS) and a collection of local authorities and sector bodies from across the UK. Over 200 local governments have signed the Declaration and are managing their organizations with digital as the catalyst to radically improve customer service, workforce productivity and better value.

Appendix 3 – Cloud Assessment

A 3.1 Legal Obligations

Municipalities in Ontario are obligated to manage the (personal) information in their custody and control as per the requirements of the *Municipal Act*, 2001, S.O. 2001, c. 25, the *Municipal Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c. M.56 (otherwise known as MFIPPA), the *Personal Health Information Protection Act*, 2004, c. 3, Sched. A (otherwise known as PHIPA)[2], and applicable regulations under those laws (e.g., the regulation R.R.O. 1990, Reg. 823: General under MFIPPA includes specific requirements relating to information privacy and security).

As shown in the table below, the data / information / records kept by an Ontario municipality in a Cloud computing application / solution are subject to these laws, none of which directly prohibit the use of Cloud computing.

Law	Information Management Requirement(s)
Municipal Act	A municipality is required to "retain and preserve" its records (and those of its local boards) "in a secure and accessible manner" (s. 254(1), Municipal Act) and to destroy records only as prescribed.
MFIPPA	MFIPPA provides a right of access to information under a municipality's control (subject to specific, limited exemptions), regulates the protection of individual privacy (the collection, use, disclosure, and retention of personal information), and provides individuals with a right of access to the personal information about themselves held by a municipality.
PHIPA	PHIPA regulates "the collection, use and disclosure of personal health information" (s. 1, PHIPA), provides individuals with the right to access their personal health information and to require the correction or amendment of their personal health information (both rights are subject to specific, limited exceptions), and provides for the "independent review and resolution of complaints with respect to personal health information" (s. 1, PHIPA).

[2] PHIPA applies to records containing personal health information which are created / received by a municipality in the delivery of such services as ambulance, fire, long-term care, and public health.

Federal legislation does not require Canadian organizations to keep data in Canada. Some province's provincial legislation does. British Columbia and Nova Scotia require public bodies to ensure that personal information in its custody or under its control is stored only in Canada and accessed in Canada.

Ontario privacy legislation does not prohibit municipalities from using Cloud service providers that are located outside of Canada.

The *Municipal Act* and MFIPPA do not specifically address the disclosure of data / information / records to entities outside of Ontario; however, s. 50 of PHIPA regulates the circumstances under which "A health information custodian may disclose personal health information about an individual collected in Ontario to a person outside Ontario".

None of the laws discussed above require a municipality to keep data / information / records in Ontario or in Canada; thus, Ontario municipalities are not prohibited from using Cloud service providers located outside of the province or the country, however, it can be more difficult to ensure compliance with privacy legislation when using providers in other provinces / territories or in other countries because they are not subject to Ontario's privacy laws. But it is entirely possible.

In "Thinking About Clouds? Privacy, Security and Compliance Considerations for Ontario Public Sector Institutions"[3], the Information and Privacy Commissioner of Ontario provides the following guidance regarding the jurisdiction concern with Cloud computing:

"One of the primary concerns with outsourcing to Cloud providers is the risk that the data and/or applications offered by the Cloud provider may be physically located and housed outside of the institution's legal jurisdiction. In addition, information stored and processed with a Cloud service provider may leave the jurisdiction when in transit from your institution to the Cloud provider. Information transmitted or stored outside of the country or managed by a foreign owned provider could be subject to the laws of the country housing the data or that of the provider. These laws may be substantially different from Ontario laws. For example, in the event of a dispute with the Cloud service provider, institutions may be forced to seek remedies under foreign regulatory regimes. These risks may be compounded if the Cloud service provider subcontracts processing to agents and partners located in other jurisdictions."

A 3.2 Cloud Suitability

When is Cloud Computing Suitable?

While the Cloud computing marketplace is constantly evolving, at the time of writing there are a few solution areas in which Cloud solutions are being widely adopted by municipalities and other industries, these include:

[3] Available at https://www.ipc.on.ca/resource/thinking-about-clouds-privacy-security-and-compliance-considerations-for-ontario-public-sector-institutions/

- Case management / Customer Relationship Management.
- Employee productivity and collaboration tools.
- Website management tools (e.g., mailing list management, surveys, analytics).
- Human Resource management.
- Analytics.
- Development and test environments.
- Enterprise Mobility Management / Mobile Device Management.
- Data storage and archiving.
- Disaster Recovery as a Service.

These are areas that are good for the municipality to explore, as and when the need arises. More generally speaking, the Cloud is a good approach when:

- The municipality's business needs are fulfilled by a set of standardized industry-offered services and there is a mature, competitive market of solutions and services.
- Data is not sensitive and does not include personal and/or confidential information.
- There are limited solution and/or data integration needs with existing hosted applications.
- Demand for the service is variable and may see periods of high demand, offset by periods of low demand.
- There is a requirement to implement very rapidly.
- There are limited resources, skills or capacity internally to address the business need.

When is Cloud Computing not Suitable?

Where legacy software meets requirements, is sustainable and there is no impetus to change, then there will be no driver to move to a Cloud-based solution. Business drivers – not technology change per se – will drive the need to evaluate the move to a Cloud-based solution.

However, where the municipality is acquiring or replacing a solution, there will be some situations where there will be drivers to avoid a Cloud-based solution, including:

- Where proposed Cloud solutions cannot meet the security and privacy, contractual and performance requirements of the jurisdiction.

- Where software required by the municipality is simply unavailable as a Cloud-based solution or functionality is not available in the Cloud.
- Where instability in the marketplace (e.g., consolidation) prevents a clear outcome.
- Where local systems integration/interface dependencies present obstacles to effective implementation of a Cloud solution.
- Where Cloud solutions present a significantly higher total cost of ownership (TCO) while providing insufficient value.

A 3.3 Cloud Suitability Assessment

A simple up-front checklist is provided here to help determine whether Cloud options may be suitable. It identifies characteristics or traits of solutions that may be well suited to Cloud. When thinking about a solution, consider if:

- The solution fits into the commoditized categories of service identified as suitable (e.g., collaboration, case management, CRM, financial, HR processes, website management).
- There are a range of established Cloud solutions available in the market.
- There are no on-premise data / systems integration needs.
- There are strong mobility / remote / partner access requirements.
- The municipality has standardized its business processes or is willing to standardize.
- There are limited needs for / expectations of being able to customize the solution.
- The solution has scalability needs that the municipality is not best placed to handle.
- The municipality's technology teams don't have the resources, skills or capacity to handle the requirement.
- The solution needs to be rapidly implemented.
- The solution needs to handle credit card payments (therefore requires PCI compliance).

This step involves an informal market scan to get a sense of whether Cloud-based solutions exist that may meet the municipality's needs.

Information Sensitivity Classification

Given the municipality's responsibilities regarding data privacy and security (outlined above in the Legal Obligations section), a determination must be made of the nature of the data potentially moving to the Cloud.

At this stage, the municipality's Privacy Officer (or equivalent) must be consulted and should assist the business owner and IT in:

a. Classifying the sensitivity of the information proposed to be managed by the system, and
b. Determining whether a Privacy Impact Assessment (PIA) is required.

An information sensitivity classification is used to demarcate the security classification to be assigned to each type or category of data, information, or records created, received, or retained by an organization. It identifies data / information / records that are public vs. restricted, with restricted data / information / records being typically categorized into 2-3 levels depending on content and the severity of the damages that would arise should the data / information / records be inappropriately accessed or released.

If the municipality does not currently have a formal information sensitivity classification that defines confidentiality, formally developing one should be an activity for the future. In the interim, the following classification is provided to guide evaluation of and decisions related to Cloud computing.

- **Restricted:** Data / information / records of a highly sensitive or confidential nature intended for restricted internal use. Unintended disclosure of such data / information / records would have a severe or adverse effect on an individual, group, other party or on the municipality's operations, assets or reputation. Due to its privacy, legal or competitive content, access to restricted data / information / records is limited to a small number of authorized individuals on a need-to-know basis.
- **Confidential:** Data / information / records of a sensitive or confidential nature intended for limited internal use. Unintended disclosure of such data / information / records would have a moderate effect on an individual, group, other party or on the municipality's operations, assets, or reputation. Access is generally limited to individuals in specific job functions for an authorized purpose.
- **Internal:** Data / information / records intended to be used internally by employees in the day-to-day operations of the municipality. Unintended disclosure of such data / information / records would have minimal or no effect on an individual, group, other party or on the municipality's operations, assets, or reputation.
- **Public:** Data / information / records that the municipality has published for general or public consumption, or publicly known data / information / records the municipality has received from other organizations. Unintended disclosure would have no effect on an individual, group, other party or on the municipality's operations, assets or reputation.

The table below provides, for illustration purposes, examples of municipal data / information / records and how they may be classified into the four categories.

Restricted	Confidential	Internal	Public
• Contract negotiations (e.g., land purchase or sale, labour relations, negotiations with provincial or federal government, negotiations with suppliers) • Encryption keys • Minutes of in-camera Council meetings • Plans for critical infrastructure • Security codes, passwords and procedures	• By-law enforcement or other investigations • Contracts • Credit card numbers (corporate or customer credit cards) • Personal health information • Personnel files	• Administration procedures • Asset and Work Management records • Employee training records • Internal communications regarding projects, etc. • Inventory management records • Policy interpretations • Staff meeting minutes	• Agendas and minutes of public meetings of Council and Council committees • Content on the municipality's website • Externally advertised job postings • Fee schedules • Online engagement • Open Data published by the municipality • Press releases • Public reporting and notifications

A3.4 Municipal Responsibilities

While there are others, there are two primary *legal* considerations when considering the move to Cloud services:

Protection of Personal (Health) Information: *The Municipal Freedom of Information and Protection of Privacy Act* (MFIPPA) governs the collection, use, disclosure and retention of personal information and the *Personal Health Information Protection Act* (PHIPA) governs the collection, use and disclosure of personal health information.

Protection of Confidential Information from Unauthorized Access: In the course of municipal business, certain information must remain confidential. Examples include minutes of in-camera Council meetings, personnel files, payroll, case management files, investigation files and contract negotiations. Preventing unauthorized access to confidential information is critical.

The municipality has a clear responsibility under the *Municipal Act* and privacy law (MFIPPA for personal information and PHIPA for personal health information) to effectively manage the (personal) information in its custody or control.

Moving services to the Cloud does not obviate that responsibility, as clearly stated in Cloud Computing for Small and Medium-Sized Enterprises (SME) (guidance published by the Office of the Privacy Commissioner of Canada and the Offices of the Information and Privacy Commissioner of Alberta and British Columbia)[3]:

> ***"If an organization chooses to outsource personal data for processing or other services to a Cloud service provider, it remains accountable for protecting its customers' personal information and it must be transparent about its information management and privacy practices."***

This means that, through contractual agreements, the municipality must specify information security and management controls, provider responsibilities and obligations and ensure that appropriate penalties and incentives are in place to ensure that providers meet the standards required by the municipality. However, as stated in Cloud Computing for Small and Medium-Sized Enterprises, a municipality may have little (or no) success in negotiating alterations to a Cloud provider's standard contractual agreement.

Organizations sometimes find that Cloud providers present "take it or leave it" contracts. In other words, the provider sets the parameters of the relationship and the contracting organization is required to go along with it in order to use the service. This tends to be the case with free online services offered by Cloud providers.

The concern is that the terms of service that govern the relationship with the Cloud service provider sometimes allow for more liberal usage of personal information and retention practices and these standard contract clauses may not be sufficient to allow small and medium-sized enterprises to meet their privacy obligations. Moreover, it may be problematic if the Cloud provider is able to unilaterally change the agreement, limit its liability for the information and/or subcontract to various other providers.

SMEs (small and medium-sized enterprises) in particular might be more likely to encounter a "take it or leave it" situation than larger organizations that have more resources to push back on such contracts or set up a private Cloud. Still, the accountability remains with the outsourcing organization even if the service is free or if the Cloud provider sets a "take it or leave it" contract.

Beyond these primary concerns, the municipality has financial, value, sustainability and other concerns that must be addressed. The municipality's procurement policies should guide purchasing and must be followed.

One final consideration is the "duty to inform". There may be an expectation that municipalities will inform system users of what the information is being used for and this may be extended to understanding where data could potentially be stored and accessing information about their data like General Data Protection Regulation (GDPR) requirements in the European Union.

Following these guidelines will help project sponsors, technology leaders, information management and privacy advisors, and senior management ensure that benefits are quantified, risks assessed and reasonable measures put in place to mitigate risks.

A 3.5 Cloud Procurement Requirements

Based on the assessment of the Information Sensitivity Classification Scheme, the municipality can use the following requirements criteria in the procurement process as a guide to the questions and information that must be gathered / answered during the RFP process.

R = Recommended	P = Preferred	I = Information
Project teams are required to have established answers to these questions and have satisfied themselves that the provider can meet the requirement.	It is the preference that project teams have established answers to these questions and have satisfied themselves that the provider can meet the requirements, however, in some cases and on some topics this may not be possible.	Project teams are encouraged to find out this information before purchasing a service.

	Cloud Requirements	Restricted	Confidential	Internal	Public
A	**SECURITY + RISK**				
	Policy and Standards				
A.1	Can the provider outline its information security framework, policies, standards and guidelines?	R	R	P	P
A.2	Can the provider supply a current threat and risk assessment for the service?	R	R	P	P
A.3	Can the provider supply a current Privacy Impact Assessment for the service?	R	R	P	P

	Cloud Requirements	Restricted	Confidential	Internal	Public
A.4	Does the provider perform regular risk / security / penetration / vulnerability assessments on the service? If so, what is the frequency of audits? If the provider is not able to provide, is the provider willing to submit to a penetration test commissioned by the municipality? If not, why not?	R	R	P	P
A.5	Does the provider have appropriate privacy and information security policies, procedures and governance in place?	R	R	P	P
A.6	Does the provider address security escalation and notification process for addressing concerns and incidents, physical security, physical access controls, firewalls and intrusion detection, maintenance activity logging, secure data disposal?	R	R	P	P
A.7	Where (geographically) is the data hosted?	R	R	R	R
A.8	Does the provider use other Cloud services itself? Can they hold their providers to the same standards as the municipality requires? How can this be assured?	R	P	P	I
A.9	What is the provider's security patch management process and timeline?	R	R	P	P

	Cloud Requirements	Restricted	Confidential	Internal	Public
	Compliance and Certification				
A.10	Does the provider have an identified Privacy Officer?	R	P		
A.11	If applicable, is the provider PCI DSS compliant? Can an attestation of compliance be provided?	R if payment processing	R if payment processing	R if payment processing	R if payment processing
A.12	Does the provider possess other certifications?	I	I	I	I
A.13	Does the provider or a third party run the data centre facility in which the solution runs?	R	R	P	P
A.14	Does the facility in which the solution is hosted maintain security compliance certifications / reporting such as SSAE 16 SOC1 and AT-101 SOC2 Type II Reports, ISO 27001?	R – provider should ideally have one compliance certification	R – provider should ideally have one compliance certification	P	P
	Security History				
A.15	The provider is required to notify the municipality of any breaches or incidents of unauthorized access or disclosure. What is the established incident/breach protocol?	R	R	R	R

	Cloud Requirements	Restricted	Confidential	Internal	Public
A.16	Has the provider experienced any security breaches? Have they been disclosed? Is the municipality satisfied with the way those breaches have been handled?	R	R	P	P
	Authentication				
A.17	Does the service require authentication?	R	R	R	R
A.18	What are the service's password rules? Is the service compliant with the municipality's password complexity rules?	R	R	R	R
A.19	Are passwords stored in non-reversible format?	R	R	R	R
A.20	Is two-factor authentication available for administrators? (applicable where PCI requirements exist)?	R	R	R	R
A.21	Does the solution support SSO? What forms of SSO are supported?	R	R	R	R
	Encryption				
A.22	Is data encrypted at rest?	R	R	P	P
A.23	Are backups encrypted?	R	R	P	P
A.24	Who controls the encryption keys?	I	I	I	I
A.25	Is data encrypted in transit (is transport based security / encryption offered)?	R	R	P	P

	Cloud Requirements	Restricted	Confidential	Internal	Public
	Accessibility				
A.26	Does this application / solution have any external facing components? If so, does it / can it comply with the WCAG 2.0 accessibility standards?	R (based on requirements)	R (based on requirements)	R (based on requirements)	R (based on requirements)
A.27	Can the application be adjusted to match the municipality's look and feel?	R (based on requirements)	R (based on requirements)	R (based on requirements)	R (based on requirements)
	Miscellaneous				
A.28	Where are the Cloud provider's services located?	R (based on requirements)	R (based on requirements)	R (based on requirements)	R (based on requirements)
B	**DATA OWNERSHIP AND MANAGEMENT**				
B.1	Does the municipality retain ownership of the data? Is this clearly stated in the contract / terms of service, user agreement?	R	R	R	R (unless allowed by exception)
B.2	Does the municipality retain IP over the data and is it clear that the data cannot be used for the provider's purposes (e.g., re-selling data or advertising)?	R	R	R	R (unless allowed by exception)

	Cloud Requirements	Restricted	Confidential	Internal	Public
B.3	Does the provider's staff have access to the municipality's data and metadata? Does the provider perform background checks on employees?	R	R	I	I
B.4	Does the provider have appropriate controls to audit, track and prevent data theft, loss, unauthorized use, copying, use, modification, disclosure or disposal? Please provide details.	R	R	P	I
B.5	Can data access and transfers (provider and municipality) be audited within the application?	R	R	R	I
B.6	Can the municipality's data be exported from the hosted system on-demand and on a regular schedule, if required? Is the format non-proprietary?	R	R	R	R
B.7	Can the municipality maintain a local backup of its data?	P	P	P	P
B.8	Can the municipality's data be safe-harboured (that is, a 3rd party stores the data separately from the Cloud provider to guard against data loss / or business failure)?	P	P	P	
B.9	Is data in the system accessible by the municipality for updates or modifications or is this controlled by the provider?	P	P	P	P

	Cloud Requirements	Restricted	Confidential	Internal	Public
B.10	At termination of contract (either customer or provider termination) can all data be extracted? What costs are associated with this?	R	R	R	R
B.11	How long will it take for the municipality to get its data? How long will the data be available?	R	R	R	P
B.12	In what format can the data be extracted?	R	R	R	P
B.13	At contract termination, will the municipality's data be deleted? Will backed-up data also be deleted? Within what timeframe will the deletion occur?	R	R	R	I
B.14	If the provider ceases business, is it possible (and how long will it take) for the municipality to recover data?	R	R	R	I
C	**PRODUCT MANAGEMENT**				
C.1	Does the provider have a regular release cycle? Outline the release cycle.	P	P	P	P
C.2	Can clients opt in/out of upgrades? Are some upgrades mandatory?	R	R	R	P

	Cloud Requirements	Restricted	Confidential	Internal	Public
D	**INTEGRATION**				
D.1	What interface capabilities (APIs, web services) does the system offer? Does solution support SOAP, REST, XML for exchanging structured data?	P	P	P	P
D.2	Are data integration requirements with other internal systems known and can the system meet these needs?	R	R	R	R
D.3	What are the recommended methods for data loading and inbound data interfaces?	P	P	P	P
D.4	What measures are put in place to reduce the impact of upgrades on client interfaces and integrations?	P	P	P	P
E	**PERFORMANCE, RELIABILITY AND DISASTER RECOVERY**				
E.1	What operating systems does the solution support? Provide name and version(s) of each operating system supported.	R	R	R	R
E.2	What browsers are supported? Provide name and version(s) of each browser supported.	R	R	R	R
E.3	What mobile browsers are supported? Provide name and version(s) of each mobile browser supported.				

	Cloud Requirements	Restricted	Confidential	Internal	Public
E.4	Are bandwidth requirements for good client performance clearly stated? Can these requirements be met by the municipality?	R	R	R	R
E.5	Can performance be tested (in a realistic scenario) before purchasing?	P	P	P	P
E.6	What is the availability of the service (e.g., 24x7x365)?	R (based on requirements)	R (based on requirements)	R (based on requirements)	R (based on requirements)
E.7	How can the municipality monitor the service performance and availability of the service?	P	P	P	P
E.8	What logs are kept and can they be accessed by the municipality to analyze an incident?	P	P	P	I
E.9	Describe the incident management process. What are Service Level Agreement (SLA) targets for performance and resolution of incidents?	R	R	R	P
E.10	Can the provider share historical performance metrics? What is the longest period of time that they have been down?	P	P	P	P
E.11	Is the data backed up? Where are the back-ups stored? What is the frequency of back-up? What are the restore capabilities? What are the restore procedures? For how long does the provider retain back-ups of data?	R	R	R	R

	Cloud Requirements	Restricted	Confidential	Internal	Public
E.12	Does the provider have a documented disaster recovery plan?	R	R	R	R
E.13	What is its Recovery Time Objective? What is its Recovery Point Objective?	R (based on requirements)	R (based on requirements)	R (based on requirements)	R (based on requirements)
E.14	Does the provider have a documented change management procedure?	P	P	P	P
E.15	Does the provider have specific planned windows when system maintenance will occur?	R	R	R	R
E.16	What notification does the provider provide for maintenance work?	R	R	R	R
E.17	Does the provider receive protection for DDOS?	P	P	P	P
E.18	Does the provider offer secondary non-production environments? Are these environments maintained? What are the provider's requirements? What are the costs of access to the required test/development environments?	R	R	R	R
F	**SUPPORT**				
F.1	How does the provider support the application?	R	R	R	R
F.2	How is support provided? Phone, email, chat?	R	R	R	R

	Cloud Requirements	Restricted	Confidential	Internal	Public
F.3	Is support available at required times (operating hours)?	R	R	R	R
F.4	What are the response and resolution targets?	R	R	R	R
F.5	How is an emergency support request handled?	R	R	R	R
F.6	For applications: Who supports the hosting system and its network? Is support for this environment different from the application support?	R	R	R	R
G	**COSTS**				
G.1	What is the initial set up fee?	R	R	R	R
G.2	What are the ongoing subscription fees?	R	R	R	R
G.3	Are there any other usage costs (e.g., data transfer, bandwidth fees)?	R	R	R	R
G.4	What are the service billing arrangements (annual fee? long-term contract? monthly fee? pay-as-you-go?)?	R	R	R	R
G.5	Are there additional costs for non-production environments?	R	R	R	R
G.6	What is the total cost of ownership?	R	R	R	R

	Cloud Requirements	Restricted	Confidential	Internal	Public
G.7	Are there costs to the municipality to increase internet bandwidth to satisfy performance requirements?	I	I	I	I
G.8	Is the contract length defined / agreed?	R	R	R	R
G.9	Is there a cap on price increases? How often and by how much can provider increase fees?	R	R	R	R
G.10	Can the Cloud provider cut off access to service / data in the event of non-payment of fees?	R	R	R	R
G.11	Are there any costs or penalties associated with service termination? What if a security breach occurs?	R	R	R	R
H	**LEGAL AND CONTRACTUAL**				
H.1	Provider to supply copies of the Contracts, Terms of Use, Privacy and Confidentiality Policy and SLA.	R	R	R	R
H.2	What is the dispute resolution method in the Cloud provider's SLA?	R	R	R	R
H.3	What notice is required for SLA changes or policy changes?	R	R	R	R

Appendix 4 – Business Process Optimization (BPO) and Service Design – Building Permits

A 4.1 Service Summary

The following provides a high-level summary of the service and indicates who was involved in the review.

Service Name	Building Permits Service
Reason(s) for the Process	To facilitate the safe building of buildings as per the Ontario Building Code
Typical Customers	Builders, Residents
Process Owner	Chief Building Official
Process Owner Department	Planning & Development Department
Process Owner Division	Building Division
Review Date	July 21, 2021
Process Facilitator	Prasanna Gunasekera

Review Team / Titles	John DeVries: CBO Diana Precoor: Application Support Clerk Kim David Jeff Matt

A 4.2 As-Is Service Assessment

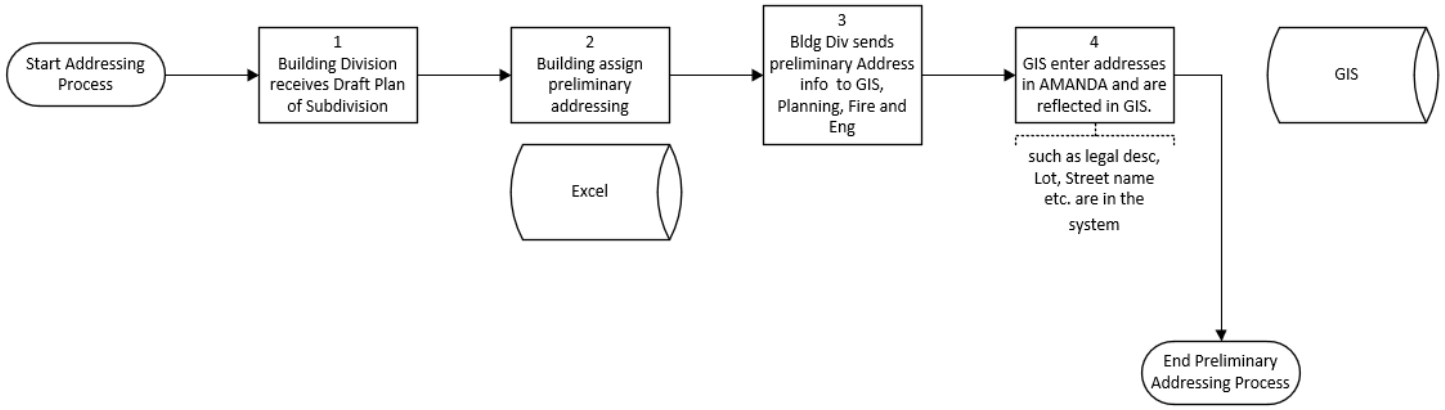
The as-is assessment was performed collaboratively with Whitby staff identified above. The current service and related business process was reviewed, mapped and potential improvements identified.

This section provides the results of the assessment of the current service (Good Service Assessment, as-is process map, customer feedback and journey map).

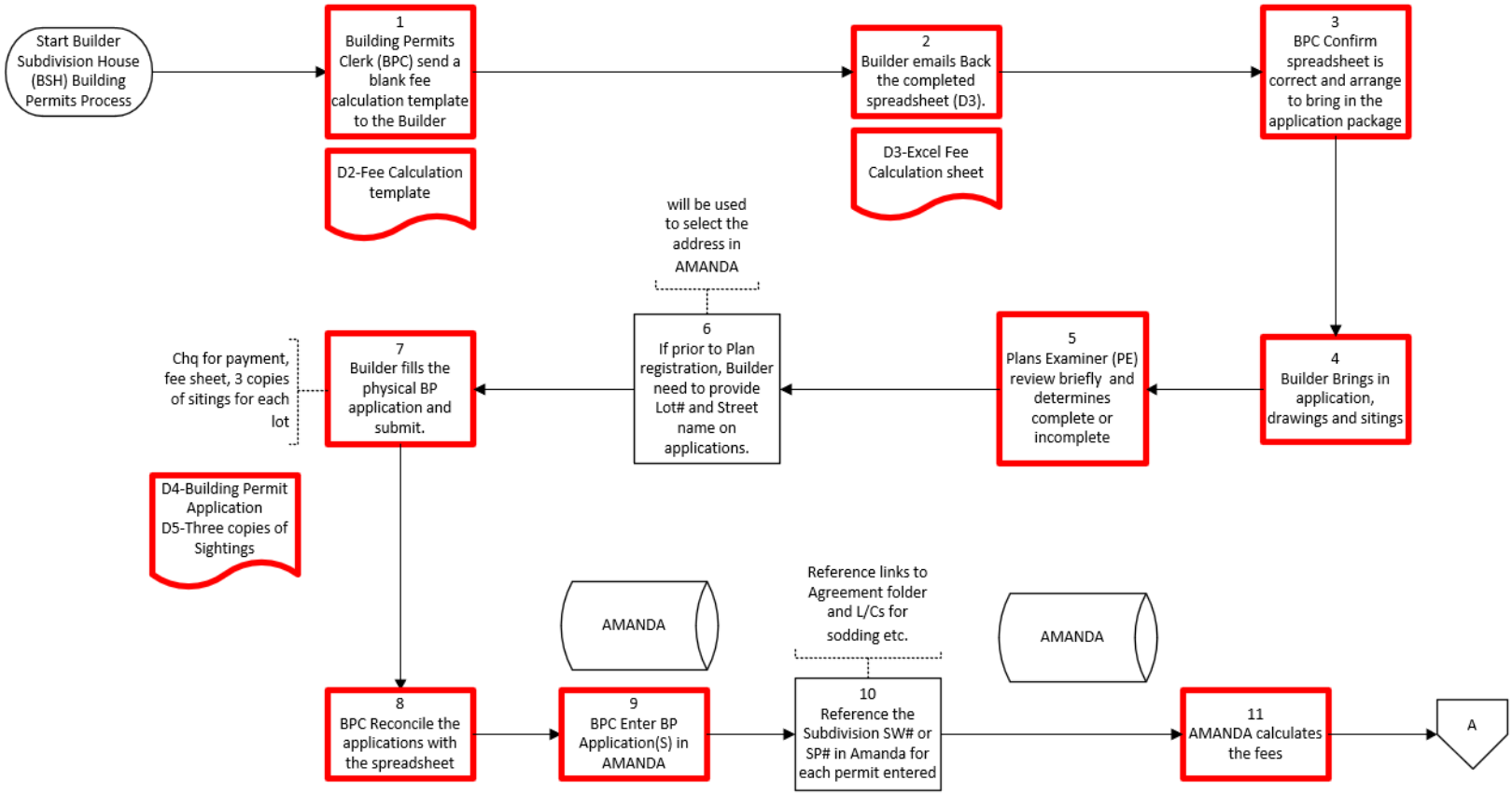
A 4.2.1 As-Is Process Map with Potential Improvements

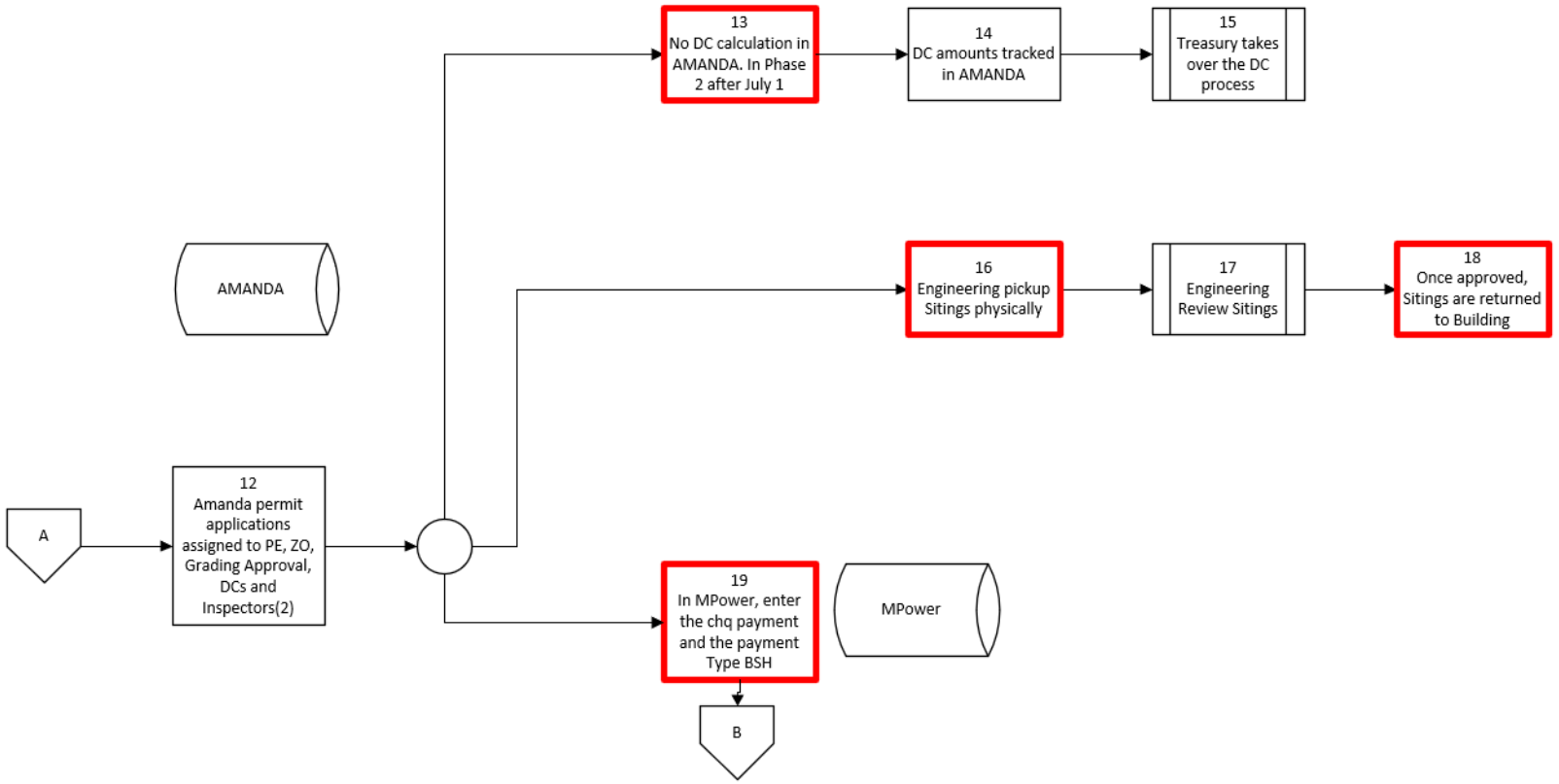
The current process map was used to identify potential improvements and time savings through automation. The tasks in the process that could be eliminated or improved were identified (in red). The potential time that could be saved through the elimination or improvement of these tasks were estimated and provided on each page. These numbers were used to calculate overall process efficiency.

Town of Whitby: Building Permits (BSH Folder Type) – As-is Process with savings	August, 2021



Town of Whitby: Building Permits (BSH Folder Type) – As-is Process with savings	August, 2021

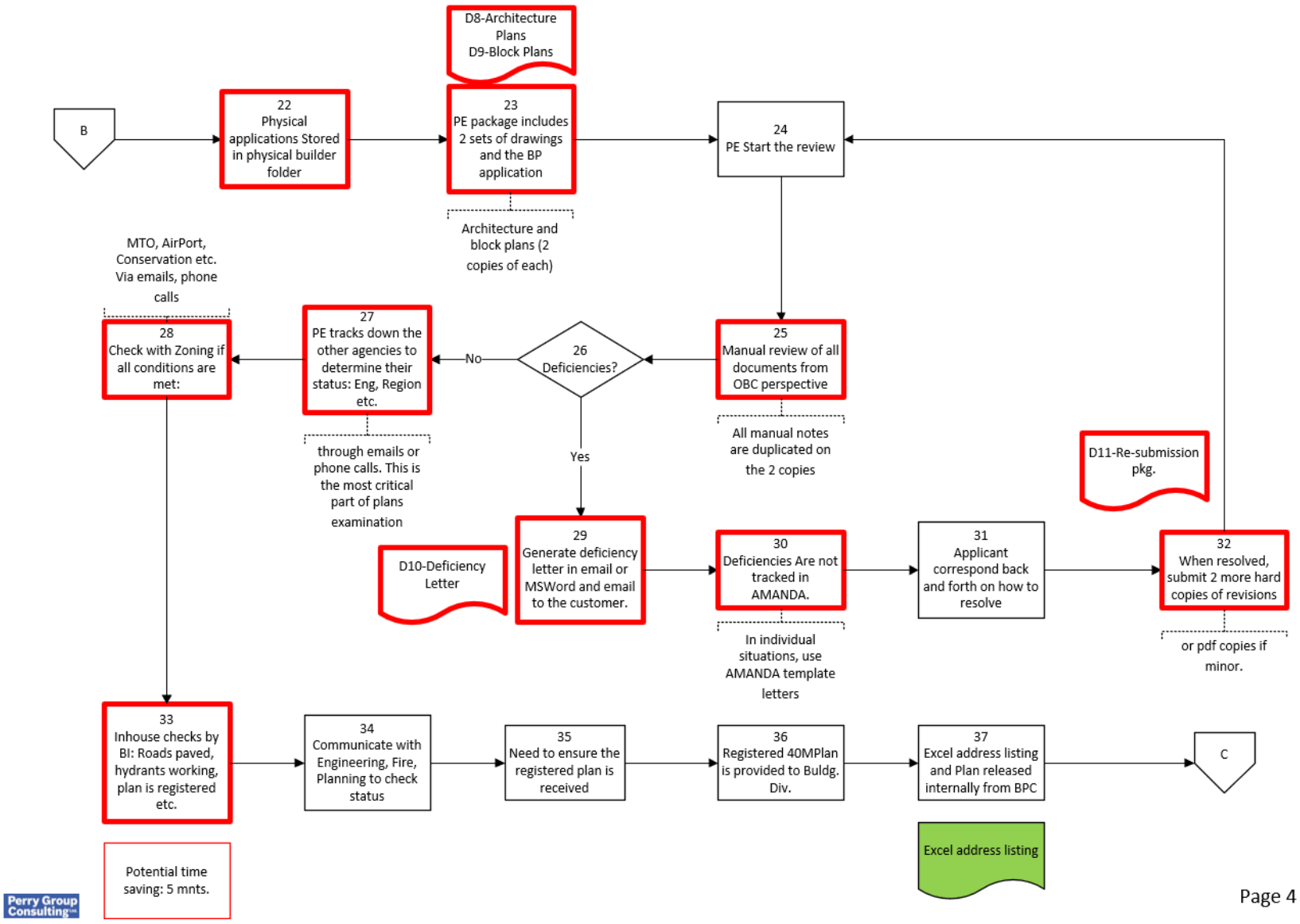




Potential time saving: 5 mnts.

Town of Whitby: Building Permits (BSH Folder Type) – As-is Process with savings

August, 2021



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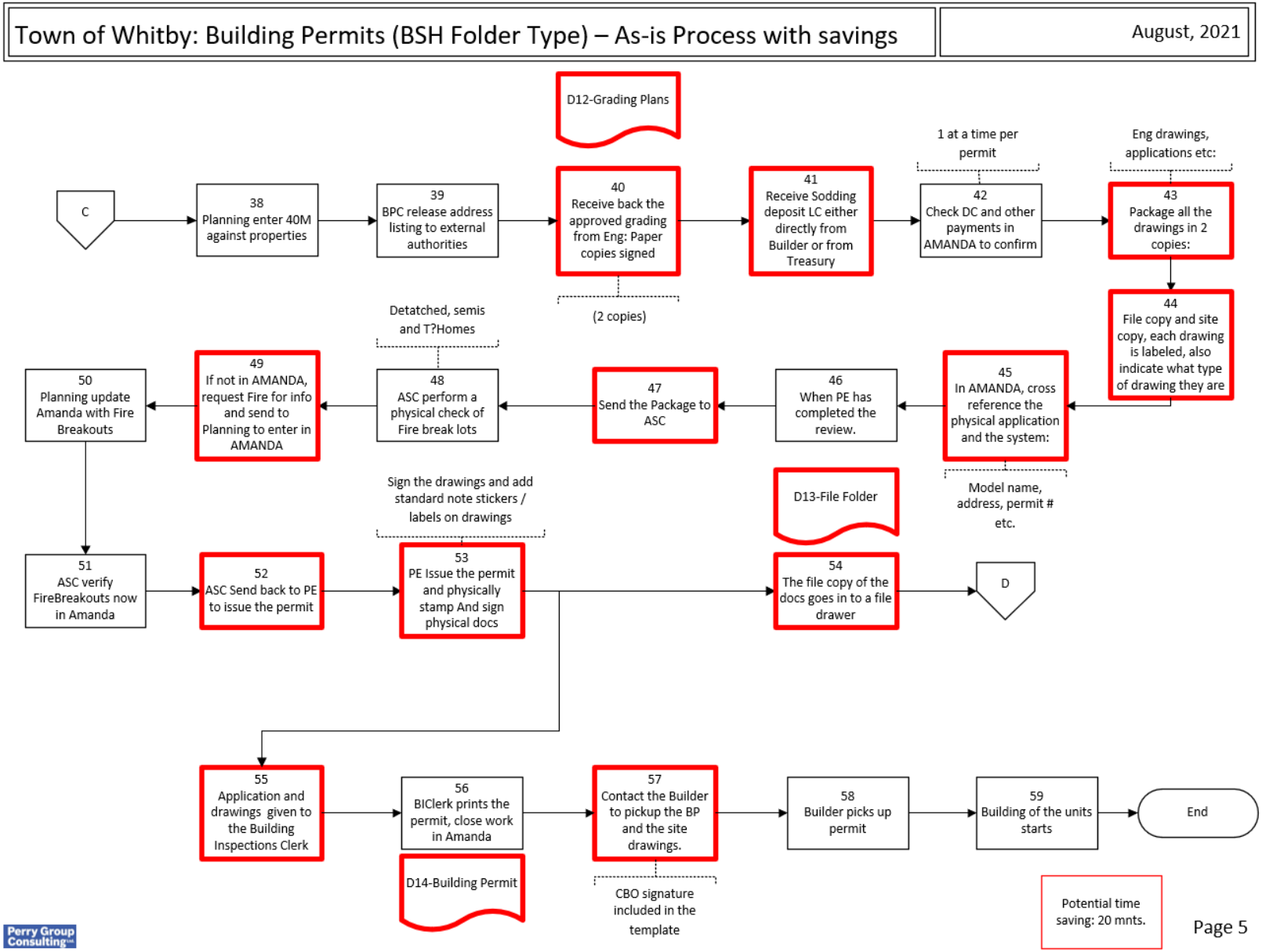
Town of Whitby: Building Permits (BSH Folder Type) – As-is Process with savings
August, 2021
D12-Grading Plans
C
38
Planning enter 40M against properties
39
BPC release address listing to external authorities
40
Receive back the approved grading from Eng: Paper copies signed
(2 copies)
41
Receive Sodding deposit LC either directly from Builder or from Treasury
1 at a time per permit
42
Check DC and other payments in AMANDA to confirm
Eng drawings, applications etc:
43
Package all the drawings in 2 copies:
44
File copy and site copy, each drawing is labeled, also indicate what type of drawing they are
45
In AMANDA, cross reference the physical application and the system:
Model name, address, permit # etc.
46
When PE has completed the review.
47
Send the Package to ASC
Detatched, semis and T?Homes
48
ASC perform a physical check of Fire break lots
49
If not in AMANDA, request Fire for info and send to Planning to enter in AMANDA
50
Planning update Amanda with Fire Breakouts
51
ASC verify FireBreakouts now in Amanda
52
ASC Send back to PE to issue the permit
Sign the drawings and add standard note stickers / labels on drawings
53
PE Issue the permit and physically stamp And sign physical docs
D13-File Folder
54
The file copy of the docs goes in to a file drawer
D
55
Application and drawings given to the Building Inspections Clerk
56
BIClerk prints the permit, close work in Amanda
D14-Building Permit
57
Contact the Builder to pickup the BP and the site drawings.
CBO signature included in the template
58
Builder picks up permit
59
Building of the units starts
End
Potential time saving: 20 mnts.
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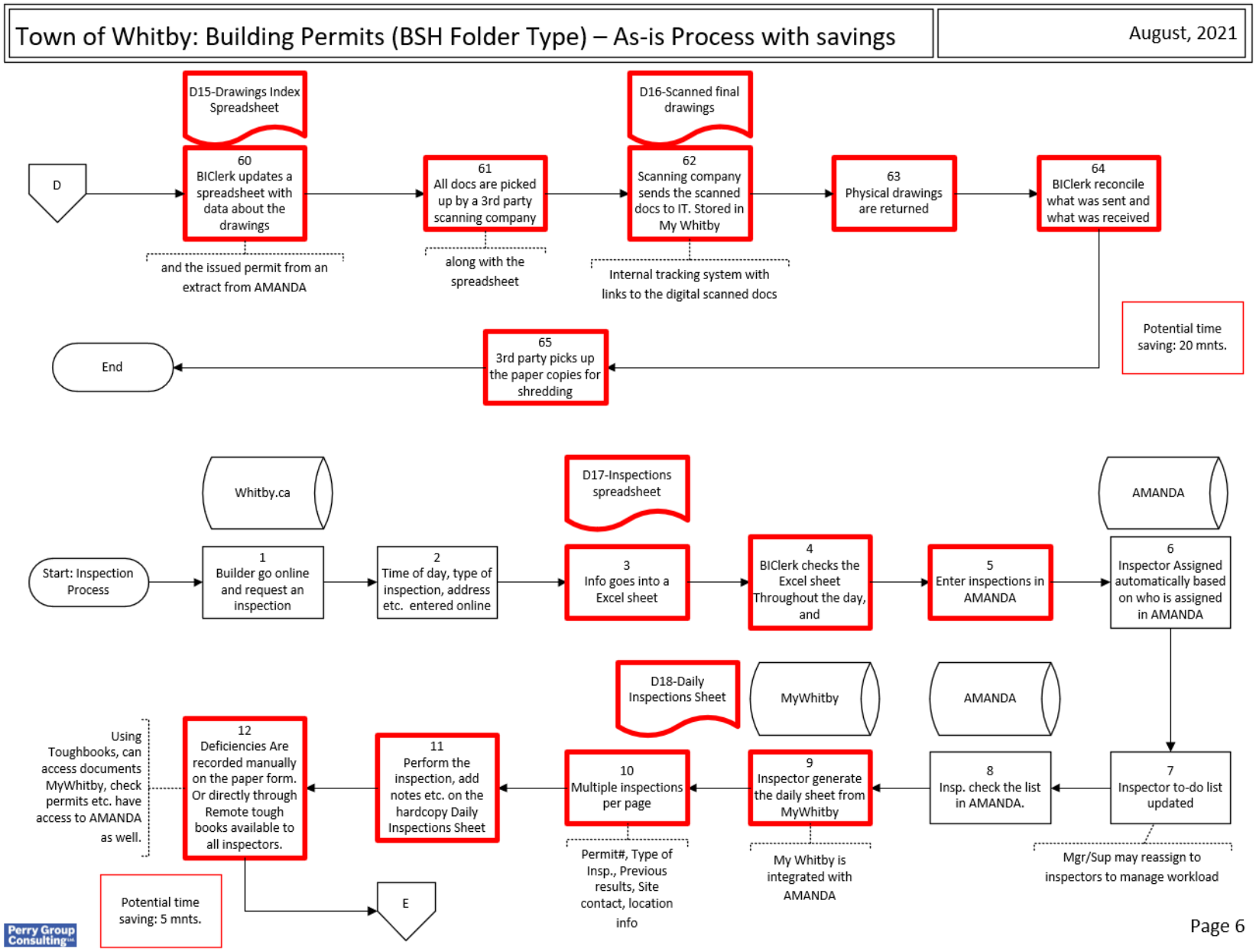
Town of Whitby: Building Permits (BSH Folder Type) – As-is Process with savings
August, 2021
D15-Drawings Index Spreadsheet
D16-Scanned final drawings
D
60 BIClerk updates a spreadsheet with data about the drawings
and the issued permit from an extract from AMANDA
61 All docs are picked up by a 3rd party scanning company
along with the spreadsheet
62 Scanning company sends the scanned docs to IT. Stored in My Whitby
Internal tracking system with links to the digital scanned docs
63 Physical drawings are returned
64 BIClerk reconcile what was sent and what was received
Potential time saving: 20 mnts.
End
65 3rd party picks up the paper copies for shredding
Whitby.ca
D17-Inspections spreadsheet
AMANDA
Start: Inspection Process
1 Builder go online and request an inspection
2 Time of day, type of inspection, address etc. entered online
3 Info goes into a Excel sheet
4 BIClerk checks the Excel sheet Throughout the day, and
5 Enter inspections in AMANDA
6 Inspector Assigned automatically based on who is assigned in AMANDA
D18-Daily Inspections Sheet
MyWhitby
AMANDA
Using Toughbooks, can access documents MyWhitby, check permits etc. have access to AMANDA as well.
12 Deficiencies Are recorded manually on the paper form. Or directly through Remote tough books available to all inspectors.
11 Perform the inspection, add notes etc. on the hardcopy Daily Inspections Sheet
10 Multiple inspections per page
9 Inspector generate the daily sheet from MyWhitby
8 Insp. check the list in AMANDA.
7 Inspector to-do list updated
Permit#, Type of Insp., Previous results, Site contact, location info
My Whitby is integrated with AMANDA
Mgr/Sup may reassign to inspectors to manage workload
Potential time saving: 5 mnts.
E
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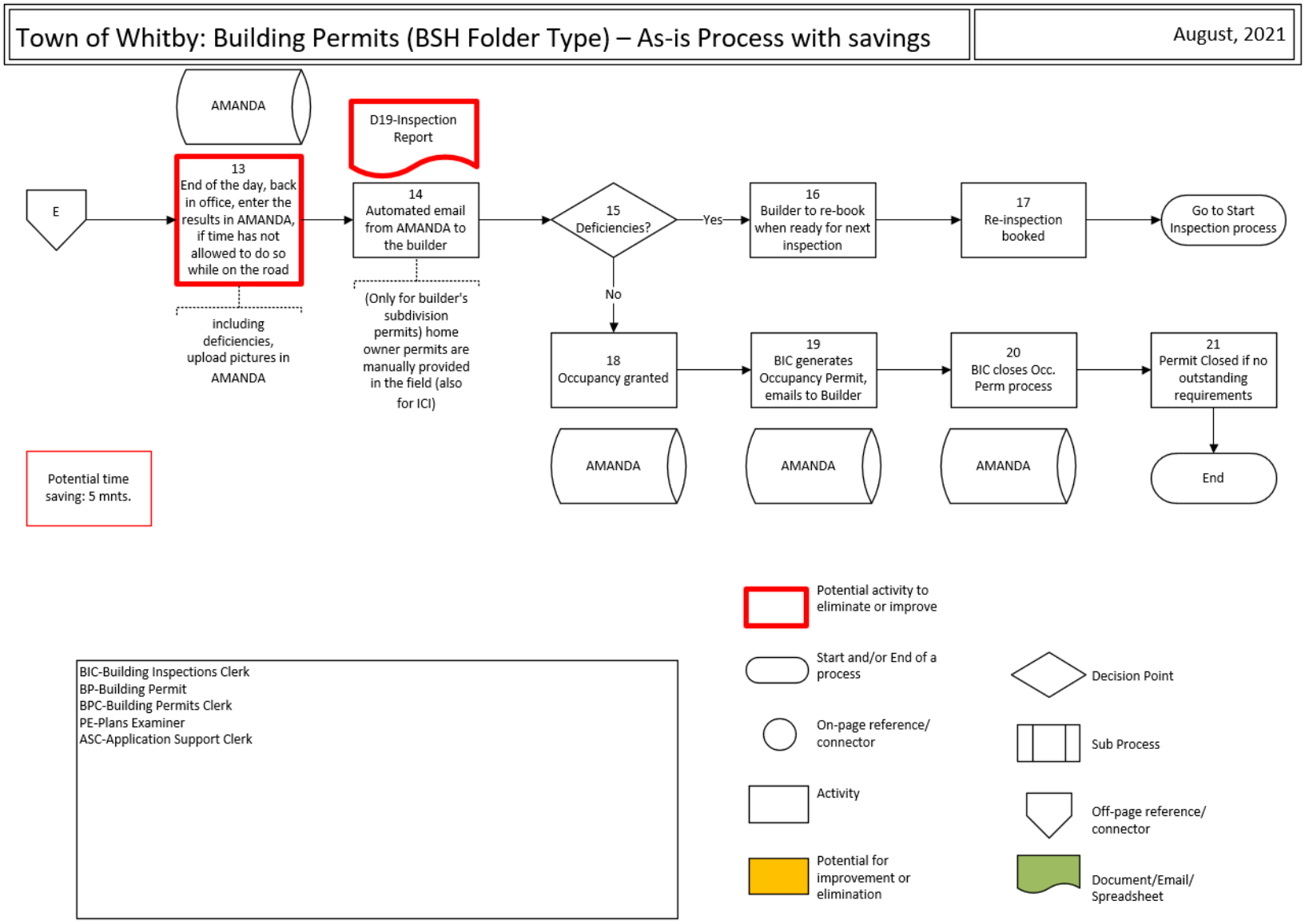

Town of Whitby: Building Permits (BSH Folder Type) – As-is Process with savings
August, 2021
AMANDA
D19-Inspection Report
E
13
End of the day, back in office, enter the results in AMANDA, if time has not allowed to do so while on the road
including deficiencies, upload pictures in AMANDA
14
Automated email from AMANDA to the builder
(Only for builder's subdivision permits) home owner permits are manually provided in the field (also for ICI)
15
Deficiencies?
Yes
16
Builder to re-book when ready for next inspection
17
Re-inspection booked
Go to Start Inspection process
No
18
Occupancy granted
19
BIC generates Occupancy Permit, emails to Builder
20
BIC closes Occ. Perm process
21
Permit Closed if no outstanding requirements
AMANDA
AMANDA
AMANDA
End
Potential time saving: 5 mnts.
BIC-Building Inspections Clerk
BP-Building Permit
BPC-Building Permits Clerk
PE-Plans Examiner
ASC-Application Support Clerk
Potential activity to eliminate or improve
Start and/or End of a process
Decision Point
On-page reference/ connector
Sub Process
Activity
Off-page reference/ connector
Potential for improvement or elimination
Document/Email/ Spreadsheet

A 4.3 Good Service Assessment

A “Good Service” is a service that a customer can find, understand and use without having to ask for help.

The Good Service Assessment table consists of the 15 universal attributes of a Good Service based on Lou Downe’s Good Service Assessment Methodology.

The consultants reviewed the Whitby website and the building permits web pages to perform an overall assessment from the customer perspective. All permit types were included in the Good Service review.

Each attribute is rated against the following rating index:

0	1	2	3	4
It is not possible for users to do this	A small minority of users can do this with extreme difficulty or effort	Some users can do this but it still requires difficulty or effort for most	Most users can do this but it requires difficulty or effort for some	All users can do this easily and consistently

A 4.3.1 Good Service Scorecard (Based on the Current Service Offering)

A Good Service…	Rating	What is your service failing to do for users?	What does “good” look like for your service?	What's stopping your service from doing this now?	What could you do to change it?
1. Is easy to find	4	The Building Permits service is easy to find on the website			
2. Clearly explains its purpose	4	The website explains when a Building Permit is required			
3. Sets the expectations a user has of it	1	Does not provide timelines or required	An online guide that help residents identify specific requirements for a	Time and resources	Add more content online regarding the approval process, timelines and

A Good Service…	Rating	What is your service failing to do for users?	What does "good" look like for your service?	What's stopping your service from doing this now?	What could you do to change it?
		supporting documents	permit type and expected timelines along including the approval process		requirements, create an online wizard/guide to help navigate and complete the application
4. Enables each user to complete the outcome they set out to do	2	Experienced developers can complete the tasks, but a first-time resident will have challenges	See item #3	Time and resources	See item #3
5. Works in a way that is familiar	2	Most customers are familiar with online forms and digital transactions. The Permits process is not digitized	An online portal that allows customers to apply, pay and receive permits through a secure website. The entire process is digitized.	Time and resources	Build a digital process where customers can go online and apply for permits, request inspections and follow the process until the project is complete
6. Requires no prior knowledge to use	2	It could be familiar to experienced developers but new residents may not know much about permits and may	See item #3	Time and resources	See item #3

A Good Service…	Rating	What is your service failing to do for users?	What does "good" look like for your service?	What's stopping your service from doing this now?	What could you do to change it?
		find it difficult to receive permits			
7. Is agnostic of organizational structures	2	Customers are required to deal with each external agency separately	The customer applies once to the municipality and all agency approvals are coordinated through the Building department	Policy, procedures and past practices	Develop a collaborative customer-centric process where all parties come together to serve the customer. The Development Approvals process already has this collaboration approach
8. Requires the minimum possible steps to complete	1	The current process requires multiple back and forth with the municipality and separate discussions with external agencies	See item #7	Policy, procedures and past practices	See item #7
9. Is consistent throughout	2	A request may start using the online form but most activities continue over the phone channel. Digital and paper copies of	See item #5	Time and resources	See item #5

A Good Service…	Rating	What is your service failing to do for users?	What does "good" look like for your service?	What's stopping your service from doing this now?	What could you do to change it?
		documents are used interchangeably throughout the process			
10. Has no dead ends	4	The current process does not have dead ends			
11. Is usable by everyone, equally	4	All users are able to use the service			
12. Encourages the right behaviours from users and service providers	1	The right behaviours could be to encourage online transactions. The current service does not provide online transactions but encourages the phone channel	See item #5	Time and resources	See item #5
13. Responds to change quickly	1	The service is not integrated among the agencies, therefore, changes are not propagated efficiently	See item #7	Policy, procedures and past practices	See item #7

A Good Service…	Rating	What is your service failing to do for users?	What does "good" look like for your service?	What's stopping your service from doing this now?	What could you do to change it?
14. Clearly explains why a decision has been made	4	The service provides clear reasons for decisions			
15. Makes it easy to get human assistance	4	Call option is available online as the preferred channel			
Total Score	**38**	**Level 3**			

A 4.3.2 Scoring Levels Explained

0-20 – Level 1
It is not possible for all but the most expert and determined users to find and use this service. It may pose significant risks to those users who are able to use it by encouraging unsafe behaviours and may make it extremely difficult for users to understand and resolve issues when they arise.
21-30 – Level 2
Though a minority of users might be able to complete your service, it is unlikely to get them to the goal they need to achieve. The majority of your users are likely to struggle to find or use your service, either because it is not inclusive, or it is designed for expert use.
31-40 – Level 3
Though some users will be able to use your service to reach their desired goal, the service is still difficult to use for the majority of users and is likely to favour those with time and previous experience. Your users may face delays in the use of your service due to organizational silos or unnecessary bureaucracy and may still become confused by inconsistencies in the service or ways of working that are unfamiliar.
41-50 – Level 4
Most users are able to find and use your service successfully, although some users may still be excluded. A user's ability to achieve the goal they set out to achieve – in one seamless service – is still likely to be made more difficult by organizational silos or more inconsistencies in your service.
51-60 – Level 5
Your service is easily findable and usable by anyone who needs to use it, enabling all users to consistently achieve the goal they set out to achieve. Your service is likely to encourage behaviours that benefit not just your user and staff, but society and the planet as a whole. P.S. Well done!

A 4.4 Building Permits Process To-Be Service Recommendations

The consultants and the Whitby staff worked collaboratively to find improvements to the current service. The improvement ideas were conceptualized in a future to-be process map. Potential elimination and/or improvements to current tasks were identified and the potential time savings were estimated.

A 4.4.1 Service Improvement Summary

This section summarizes the Digital First service improvements and benefits. Further details are available below.

Improvement Impact(s) (low, medium, high)	High
# of Annual Transactions	1,300 BSH new building permits/year (based on 2020 statistics). **A new trend in 2021 is estimated to double this number.** 12,000 inspections/year (as per 2020 statistics)
# of Steps Eliminated or Improved	51 out of 89 steps eliminated or automated
Process Time Saved Per Transaction	Permits process: 70 minutes Inspections process: 10 minutes
Elapsed Time Improvement	Varies
Estimated Cost Avoidance / Value of Time Saved Annually	$140,666

A 4.4.2 Proposed Day-In-The-Life Scenario

Whitby Builders is a local construction company that builds residential homes in new subdivisions. They have a company profile with secure access to multiple staff on the Whitby customer portal.

Nathan, who works for Whitby Builders, logs onto the Town's customer portal to apply for building permits for a new subdivision. The online application wizard allows Nathan to automatically fill the company details based on the company profile (pre-filled).

The approved subdivision data is also available online. Nathan selects the properties on a map and loads the necessary digital plans and supporting documents to the portal. The system automatically calculates the fees and allows for online payment. On submit, the system also performs a data quality check to ensure all necessary information and documents are loaded and the payment is made.

The new permit application and the related documents are now available in the Amanda system. The system alerts the internal staff to review the submission. Staff review and accept the application as complete. Amanda automatically assigns the internal sub-processes for internal departmental reviews, e.g., Plans Examiner, Engineering, Fire, Finance, etc. The system also circulates to external agencies as selected during the initial review.

All reviews are performed within the system. Plans/drawings markups are performed digitally, notices, letters are created based on pre-defined templates and the communication with the customer and agencies are through electronic channels.

The application deficiencies are tracked in Amanda. The system automatically reminds the commentors and keeps track of timelines. At the completion of all reviews, the Plans Examiner issues the permit. The system digitally stamps the final set of drawings and the permits package is now available on the customer portal. Nathan receives a system-generated notice with a link to download the permits package.

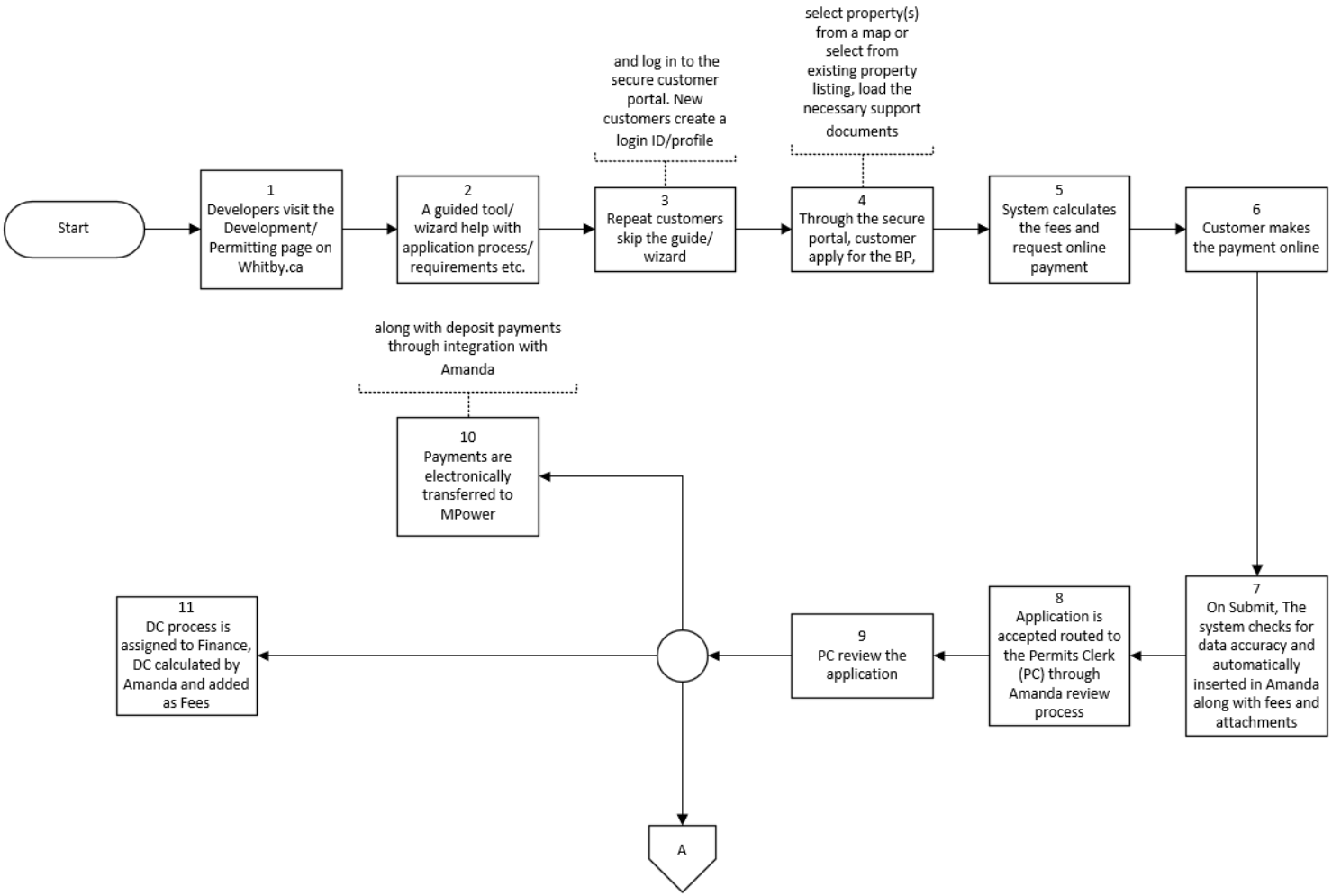
The work has begun. When ready, Nathan logs into the portal again to schedule inspections. Multiple inspections are available for each unit. Nathan selects the inspection types and dates and submits the requests. The Amanda system automatically assigns the inspections to Building Inspectors.

Inspectors get alerted via Amanda. The inspection schedules, permit information, past inspection results, etc. are available on the Toughbook. Inspectors perform the inspections, load images, make notes, etc. from the field directly in Amanda. The system automatically sends the inspection reports to the customer.

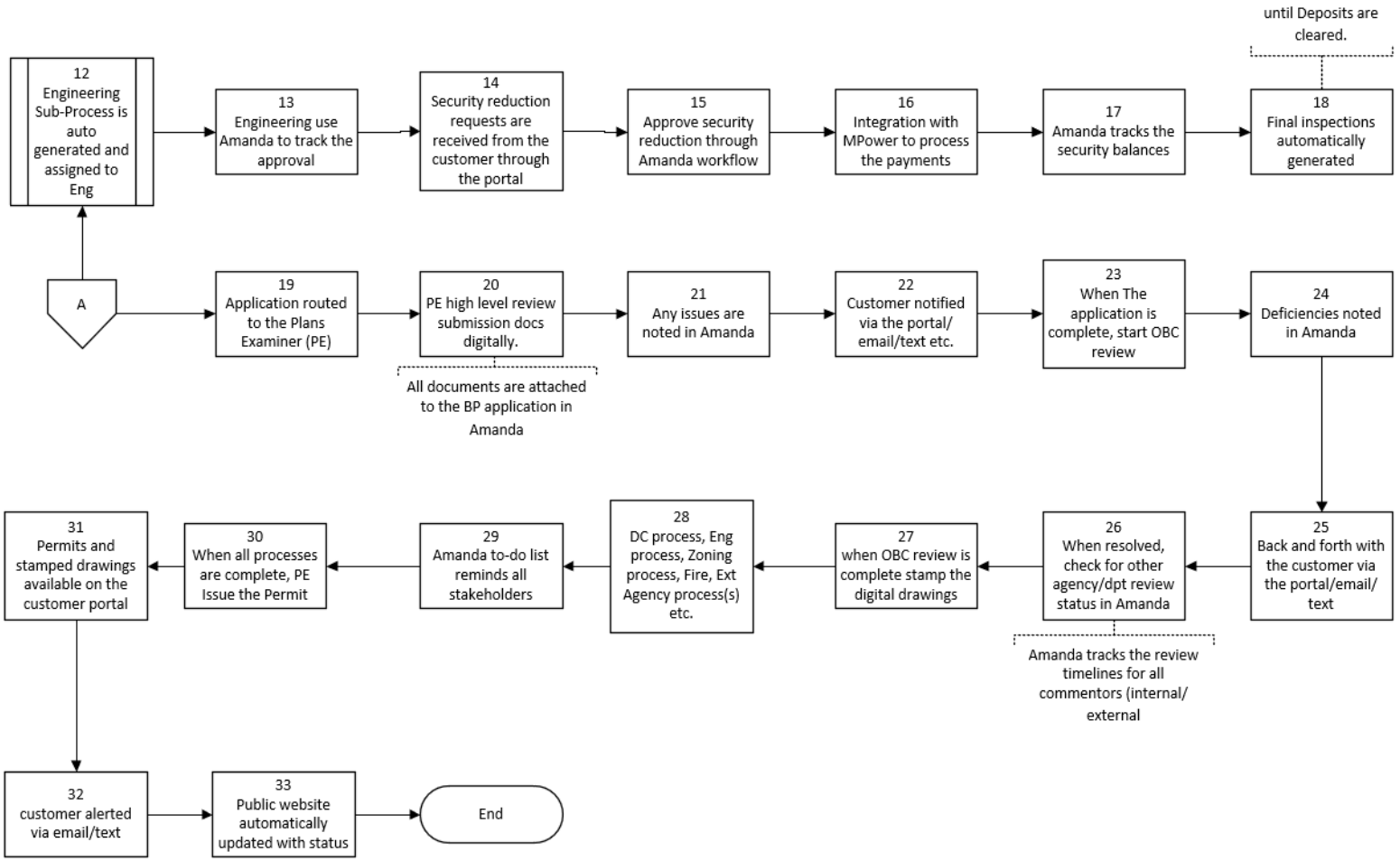
All drawings, documents, notices, etc. are digitally saved in Amanda, the Amanda dashboard is updated with all activities including the KPIs and the public website is updated automatically with relevant results.

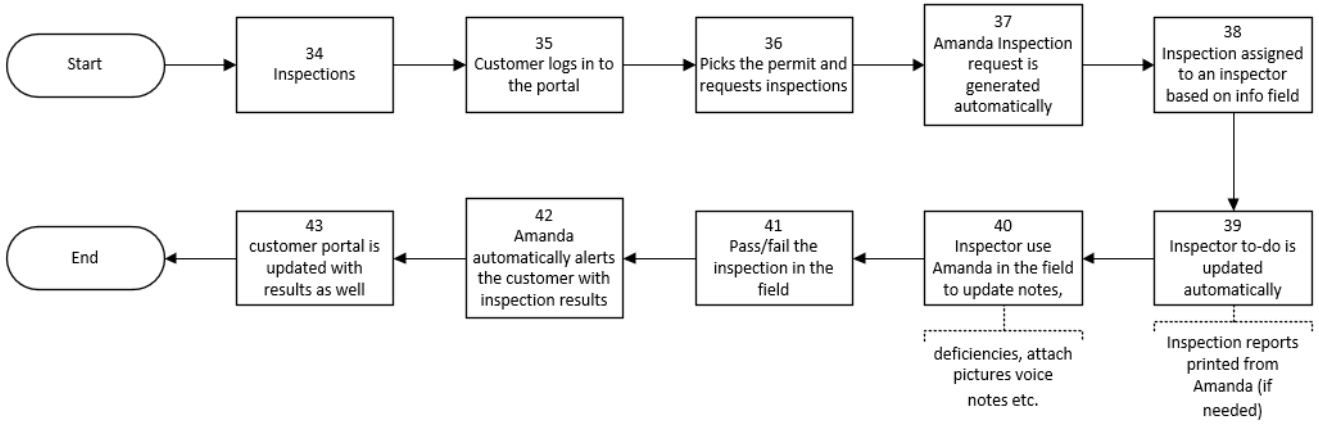
A 4.4.3 To-Be Process Map

The future ideal service map was formulated by incorporating digital improvements to the current process as discussed at the as-is workshop. The technology capabilities and process re-design ideas were incorporated to build the high-level To-Be Process Map. The to-be process map was shared with the subject matter experts and further improved.

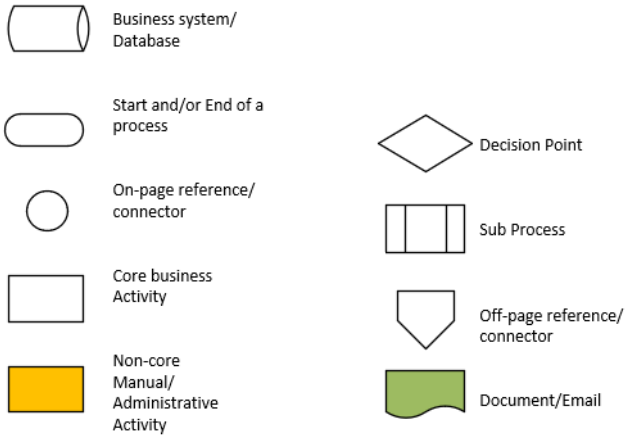

Start
1
Developers visit the Development/ Permitting page on Whitby.ca
2
A guided tool/ wizard help with application process/ requirements etc.
and log in to the secure customer portal. New customers create a login ID/profile
3
Repeat customers skip the guide/ wizard
select property(s) from a map or select from existing property listing, load the necessary support documents
4
Through the secure portal, customer apply for the BP,
5
System calculates the fees and request online payment
6
Customer makes the payment online
7
On Submit, The system checks for data accuracy and automatically inserted in Amanda along with fees and attachments
8
Application is accepted routed to the Permits Clerk (PC) through Amanda review process
9
PC review the application
along with deposit payments through integration with Amanda
10
Payments are electronically transferred to MPower
11
DC process is assigned to Finance, DC calculated by Amanda and added as Fees
A

Page 1


12 Engineering Sub-Process is auto generated and assigned to Eng
13 Engineering use Amanda to track the approval
14 Security reduction requests are received from the customer through the portal
15 Approve security reduction through Amanda workflow
16 Integration with MPower to process the payments
17 Amanda tracks the security balances
18 Final inspections automatically generated
until Deposits are cleared.
A
19 Application routed to the Plans Examiner (PE)
20 PE high level review submission docs digitally.
All documents are attached to the BP application in Amanda
21 Any issues are noted in Amanda
22 Customer notified via the portal/ email/text etc.
23 When The application is complete, start OBC review
24 Deficiencies noted in Amanda
25 Back and forth with the customer via the portal/email/ text
26 When resolved, check for other agency/dpt review status in Amanda
Amanda tracks the review timelines for all commentors (internal/ external
27 when OBC review is complete stamp the digital drawings
28 DC process, Eng process, Zoning process, Fire, Ext Agency process(s) etc.
29 Amanda to-do list reminds all stakeholders
30 When all processes are complete, PE Issue the Permit
31 Permits and stamped drawings available on the customer portal
32 customer alerted via email/text
33 Public website automatically updated with status
End



OBC-Ontario Building Code



A 4.4.4 Service Model Changes

The current service requires the customer to directly receive reviews from commenting agencies. These reviews are required by the Town, prior to issuing the permit.

Similar to the development planning approvals where the external agency reviews are coordinated through the Town, it is viewed as better customer service for the Town to coordinate the external reviews directly with the agencies.

To implement and realize the to-be process, the following process, policy, people and technology changes should be considered.

A 4.4.5 Process Changes

The following high-level process changes are recommended:

- Online self-service permit applications.
- Expand the use of Amanda system to other internal departments (e.g., Engineering) and the external agencies through integration or an agency portal.

A 4.4.6 Policy Changes

The following policy changes are recommended:

- Physical signature requirements for permit applications should be reviewed. An online logged in user account should be considered as sufficient approval from the customer.
- Consider digital signing and stamping of the final permits package.
- Review Whitby's Credit Card Payment Policy to include permit fees which are high value payments.

A 4.4.7 People Changes

The following people changes are recommended:

- Change management including training and communications to all stakeholders, i.e., staff, customers, external and internal reviewers.

A 4.4.8 Technology Changes

The following technology changes are recommended:

- Implement online Building Permit applications through a secure portal.
- Automatically update online applications to the back-office system and alert the permits staff.
- Implement an online customer guide/wizard for one-time customers to identify/understand the permit requirements and the application process.
- Allow for remote data entry of all field inspections including the capture of pictures and real-time updates to the customer.
- Consider conducting virtual inspections (especially re-inspections), where possible.
- Automatically publish updated information from data in the back-office system to online for the public.
- Create exception tracking reports, e.g., to identify deficiencies, alerts based on timelines and delays, etc.
- Create staff and management dashboards for easy identification of issues and include KPIs.
- Perform spatial analysis through GIS integration (map all building permits and inspections for analysis and reporting).
- Allow for upstream approvals (other agencies) and integrate with other agency systems, when possible.
- Maintain timelines with agencies using automated alerts, reminders, etc.
- Expand the back-office system to the other internal departments, e.g., Engineering.
- Investigate integrating with MPower for financial transactions.
- Integrate online inspection requests with the back-office system (Amanda).
- Automate the development charges calculations (currently in progress).
- Track securities and releases in the system including Engineering-refundable deposits.

A 4.4.9 Anticipated Challenges

The service design team has identified the following challenges that may be faced during the implementation of the proposed recommendations.

- Time and resources to be assigned to make the changes.
- Technical capabilities of the existing systems.

- Change management and user acceptance.
- Inclusion of business processes from other departments (the change management initiative should incorporate this important factor).

A 4.4.10 Patterns in Use

The digital service provisioning requires certain standard patterns. The following table identifies the use of specific patterns applicable to this service.

Pattern	Description	Applicable
Apply	Completing an application to receive a service	Yes
Be Notified	Receive alerts, notifications	Yes
Book	Book a room, item or an appointment for a specific date and time	Yes
Check	Check status, check eligibility, check what's closest, etc.	Yes
Get Information	Find info (read text on website, watch a video, download a doc, understand requirements, etc.)	Yes
Internal Workflow	Internal process, approvals, etc.	Yes
Pay	Pay a fee to the municipality	Yes
Register	Create an account and come back using it to get updates, provide updates, etc.	Yes
Request	Ask for something from the Town (copy of a certificate, a pass, ticket, etc.)	

Tell	Report something, inform the Town of something	

A 4.4.11 Optimization Benefits Estimates

The future digital process will allow the automation and/or elimination of existing manual activities.

The following table calculates estimated benefits to customers and internal staff.

	Customer Experience (CX)	CX Rating	Elapsed Time	Savings From Eliminated Activities	Documents
Current	All permit requests are paper-based while inspections can be booked online	Low	N/A	92 steps in the current processes	19 documents received / generated
Future	Online self-service	High	N/A	51 steps could be eliminated or improved through automation	All future documents can be digitized
Improvement		High	N/A	70 mnts saved per permit 30 mnts saved per inspection	19 documents could be eliminated or digitized

Customer Experience Rating

High: Service can be accessed at anytime from anywhere; no need for face-to-face interactions; convenient to the customer and the staff.

Medium: While most actions are seamless, some tasks are inconvenient, e.g., print, sign and mail documents, make payments using a cheque.

Low: Requires a visit, print and mail, face-to-face interactions. No or limited online features available.

A 4.4.12 Estimated Benefits Summary

An average hourly rate of $50 has been applied for the calculations below. This is a rounded figure that includes the time spent by all levels of staff as well as the benefits.

Annual # of Transactions	# of Hours Saved per Transaction	Hourly Rate ($)	Cost Avoidance
1,300 BSH permits issued	70 mnts.	$50	$75,833
12,000 inspections	10 mnts.	$50	$100,000
Total potential cost avoidance per annum @ 80% success rate			$140,666 (100% = $175,833)

Appendix 5 – Business Process Optimization (BPO) and Service Design – MoC Request Management

A 5.1 Service Summary

The following provides a high-level summary of the service and indicates who was involved in the review.

Service Name	Members of Council (MoC) Customer Request Management
Reason(s) for the Process	To provide solutions to customer requests in a timely and efficient manner
Typical Customers	Residents
Process Owner	Town Clerk
Process Owner Department	Office of the Town Clerk
Process Owner Division	Office of the Mayor and Council
Review Date	October 6, 2021
Process Facilitator	Prasanna Gunasekera
Review Team / Titles	• Chris Harris • Mandy Lee • Janis Antram • Mark Graziosi

A 5.2 As-Is Service Assessment

The as-is assessment was performed collaboratively with the Whitby staff identified above. The current service and related business process was reviewed, mapped and potential improvements identified.

This section provides the results of the assessment of the current service (Good Service Assessment, As-Is Process, customer feedback and journey map).

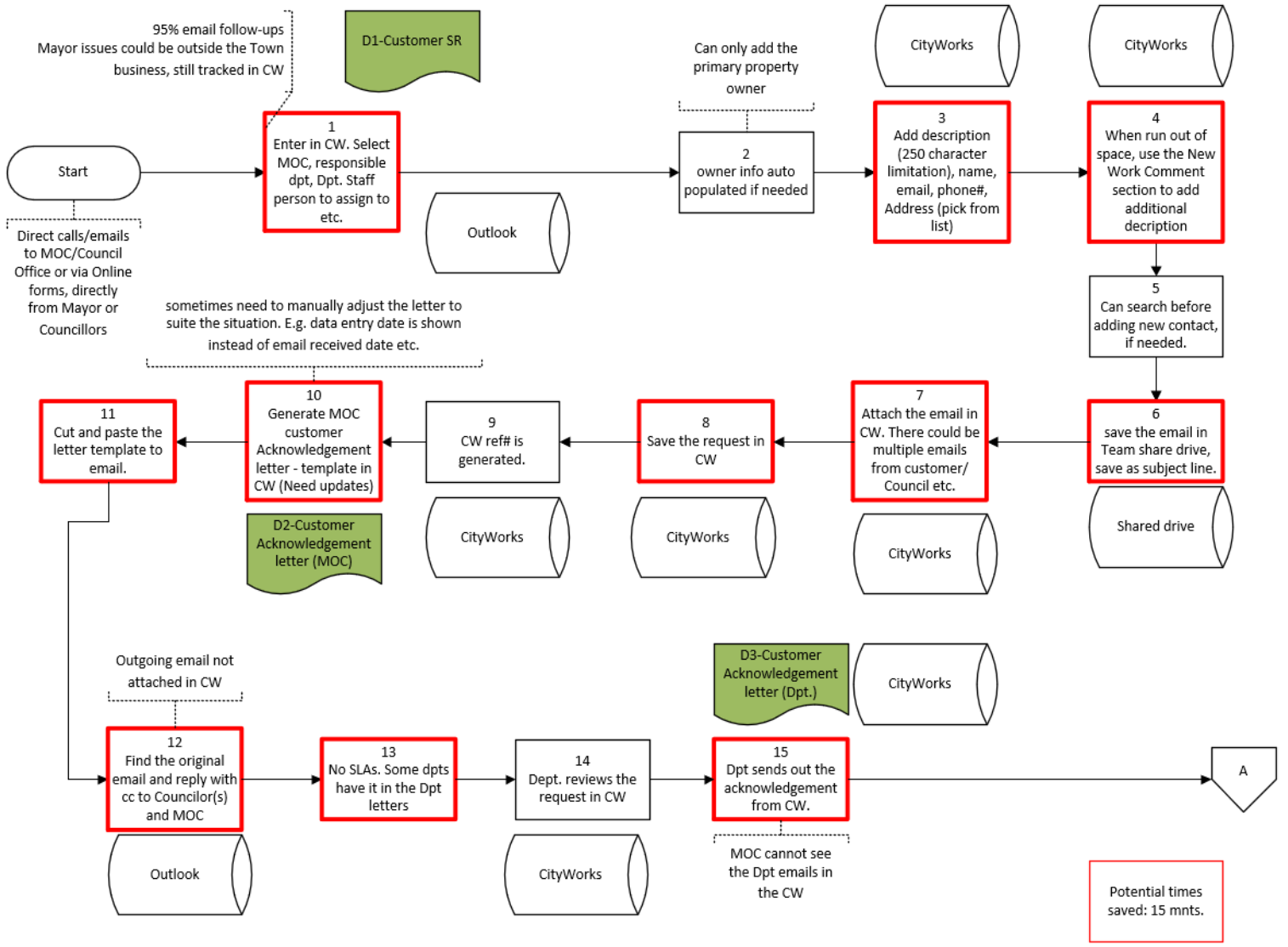
A 5.2.1 As-Is Process Map with Potential Improvements

The current process map was used to identify potential improvements and time savings through automation. The tasks in the process that could be eliminated or improved were identified (in red). The potential time that could be saved through the elimination or improvement of these tasks were estimated and provided on each page. These numbers were used to calculate overall process efficiency in the section 4.11 and 4.12.

Note: The improvements to the As-is process and the to-be service/process was proposed with the assumption of a Town-wide Customer Relationship Management (CRM) system in place in the future state

Whitby: MoC Service Request Tracking As-is Process Flow

Perry Group Consulting Ltd. August, 2021



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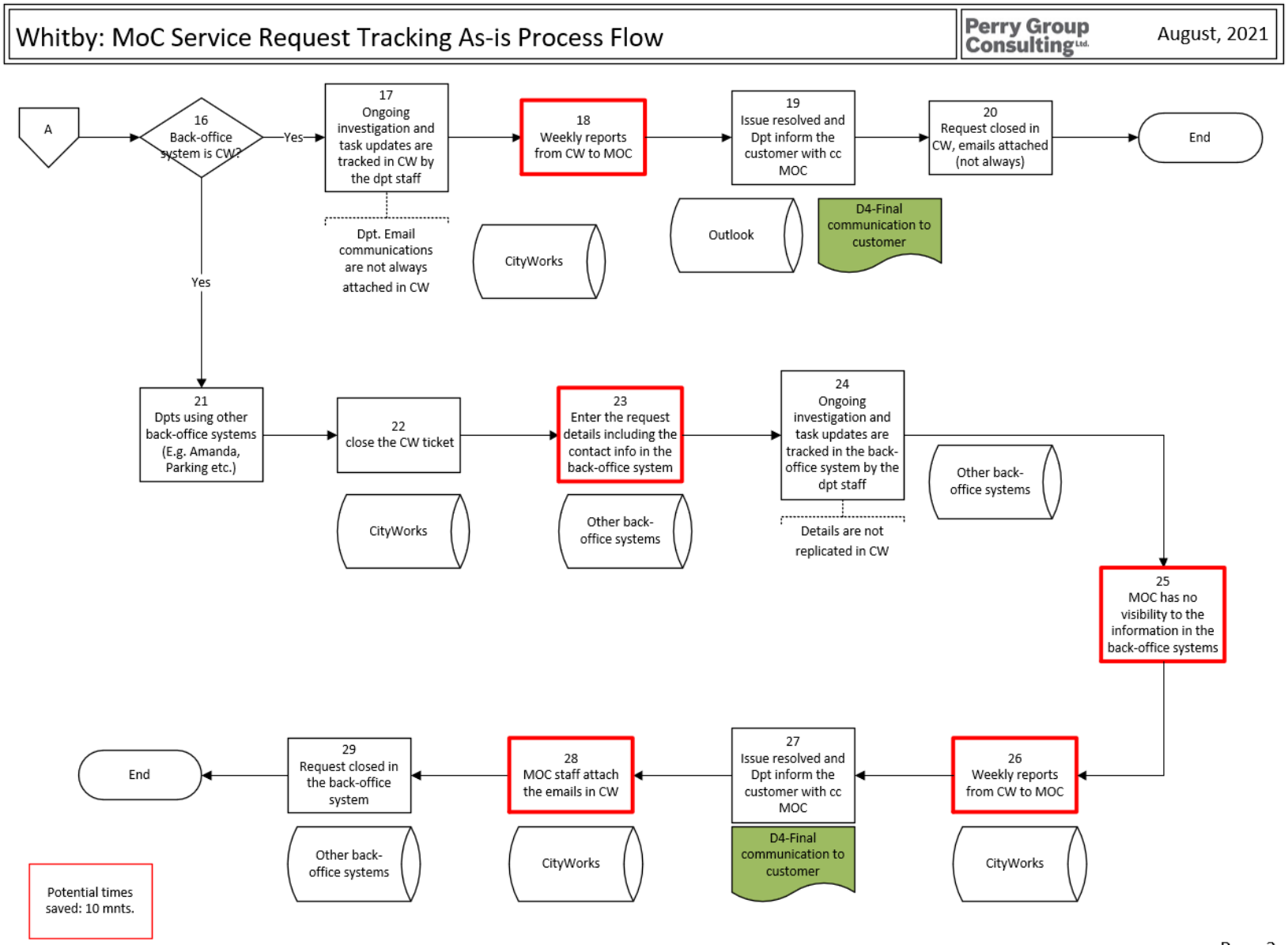
Whitby: MoC Service Request Tracking As-is Process Flow
Perry Group Consulting Ltd.
August, 2021
A
16 Back-office system is CW?
Yes
17 Ongoing investigation and task updates are tracked in CW by the dpt staff
Dpt. Email communications are not always attached in CW
CityWorks
18 Weekly reports from CW to MOC
19 Issue resolved and Dpt inform the customer with cc MOC
Outlook
D4-Final communication to customer
20 Request closed in CW, emails attached (not always)
End
Yes
21 Dpts using other back-office systems (E.g. Amanda, Parking etc.)
22 close the CW ticket
CityWorks
23 Enter the request details including the contact info in the back-office system
Other back-office systems
24 Ongoing investigation and task updates are tracked in the back-office system by the dpt staff
Details are not replicated in CW
Other back-office systems
25 MOC has no visibility to the information in the back-office systems
26 Weekly reports from CW to MOC
CityWorks
27 Issue resolved and Dpt inform the customer with cc MOC
D4-Final communication to customer
28 MOC staff attach the emails in CW
CityWorks
29 Request closed in the back-office system
Other back-office systems
End
Potential times saved: 10 mnts.

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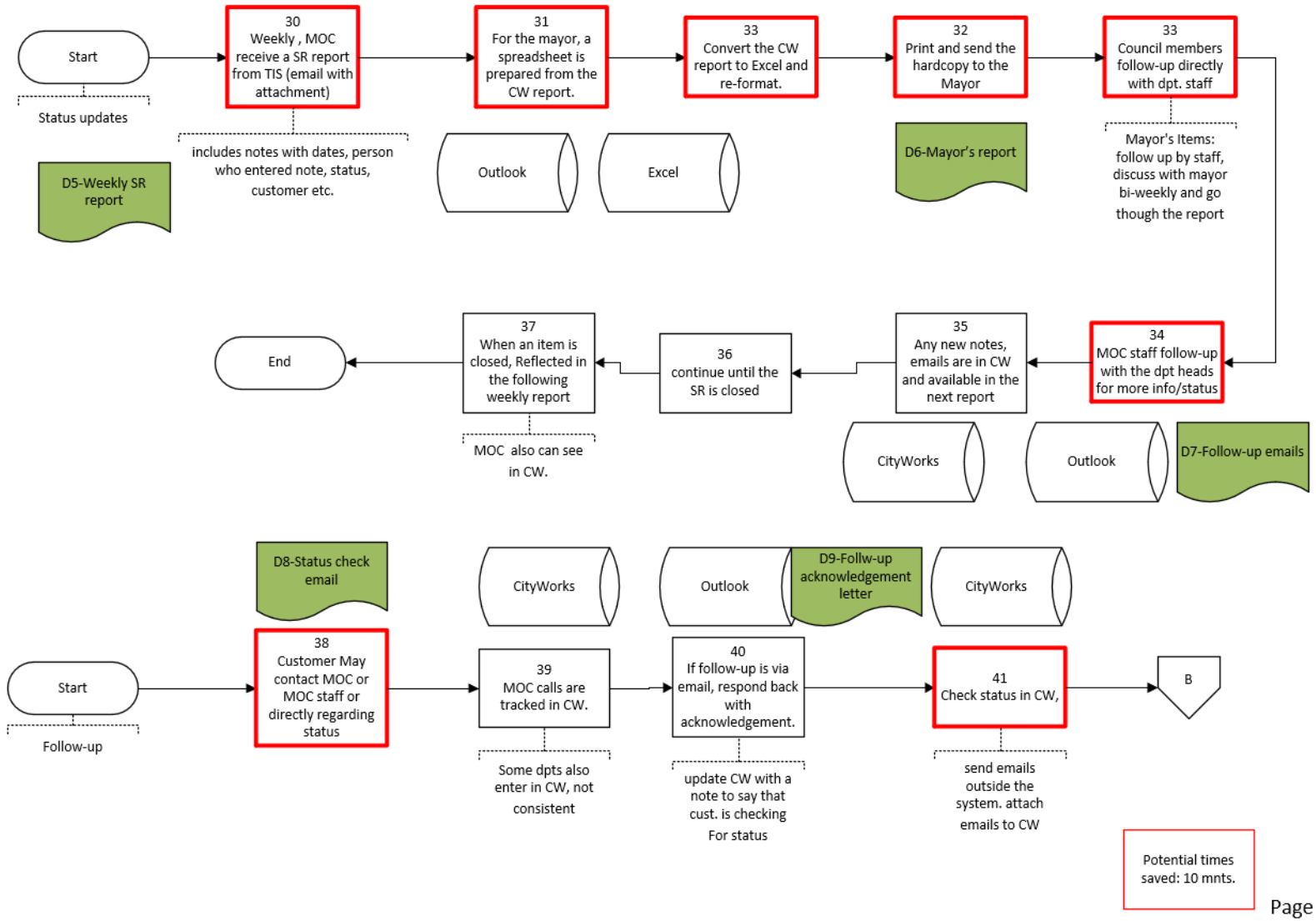
Whitby: MoC Service Request Tracking As-is Process Flow

Perry Group Consulting Ltd. August, 2021



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Whitby: MoC Service Request Tracking As-is Process Flow

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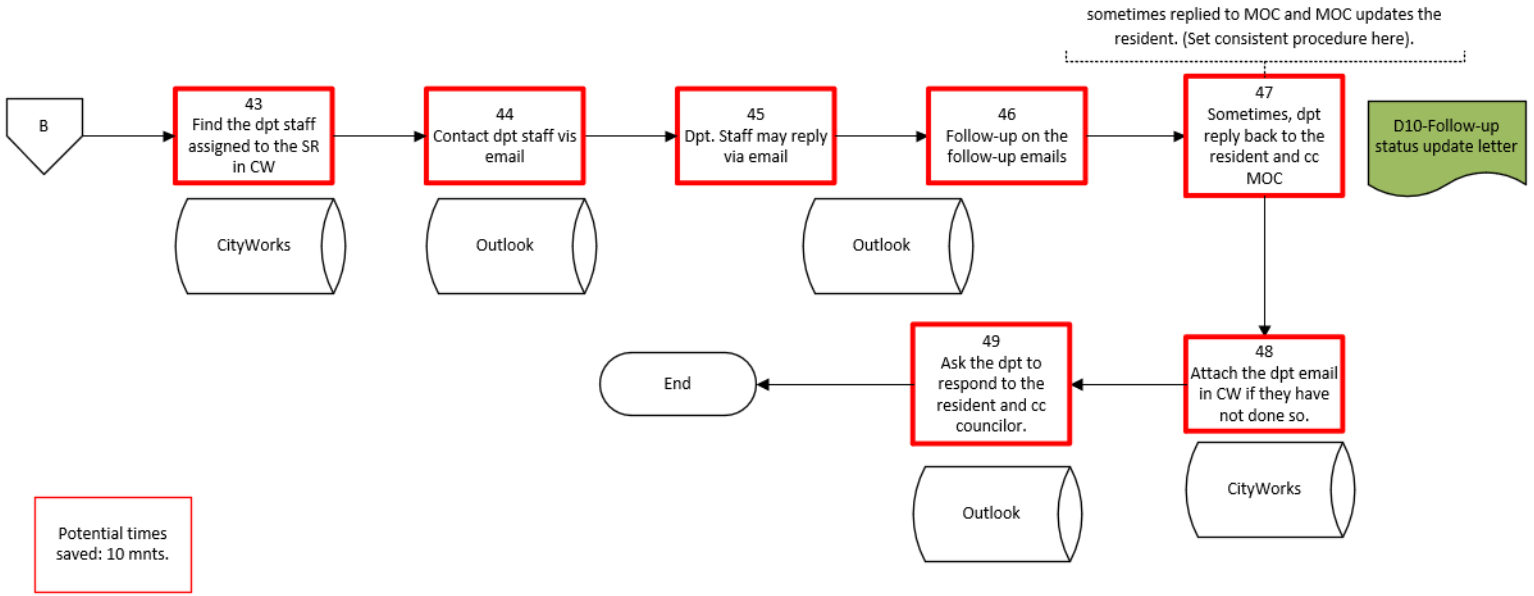
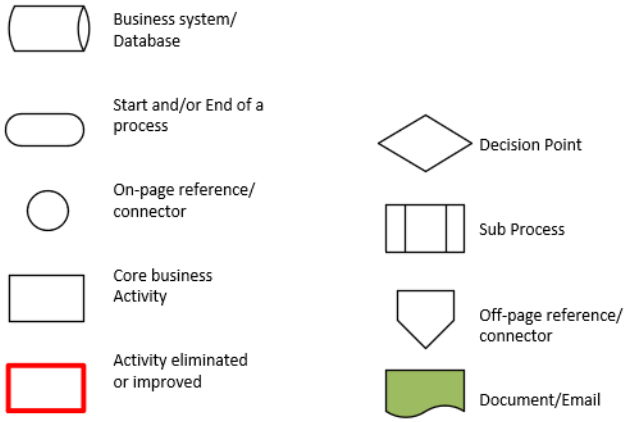


MOC-Members of Council
CW-CityWorks
TIS-Technology and Innovation Services
SR-Service Request



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A 5.3 Good Service Assessment

A “Good Service” is a service that a customer can find, understand and use without having to ask for help.

The Good Service Assessment table consists of the 15 universal attributes of a good service based on Lou Downe’s Good Service Assessment Methodology. The consultants have reviewed the Whitby website and the Mayor and Councillor Web pages to perform an overall assessment from the customer perspective.

Each attribute is rated against the following rating index:

0	1	2	3	4
It is not possible for users to do this	A small minority of users can do this with extreme difficulty or effort	Some users can do this, but it still requires difficulty or effort for most	Most users can do this, but it requires difficulty or effort for some	All users can do this easily and consistently

♣ Good Service Scorecard (Based on the current service offering)

A Good Service…	Rating	What is your service failing to do for users?	What does good look like for your service?	What's stopping your service doing this now?	What could you do to change it?
1. Is easy to find	4	Contacting the Mayor or Councillors is easy and easy to find on the website.			
2. Clearly explains its purpose	4	The Contact us link is self-explanatory			
3. Sets the expectations a user has of it	1	No service levels, expectations are provided on the website. Initial request is received online but the rest of	Proactively provide the expected timelines to the customer on the website. Provide online status checks	Policies, internal procedures and resources	Define service levels for key services and share with residents pro-actively

A Good Service…	Rating	What is your service failing to do for users?	What does good look like for your service?	What's stopping your service doing this now?	What could you do to change it?
		the process is over the phone	through the customer portal		
4. Enables each user to complete the outcome they set out to do	2	The current contact us form allow the customers to contact the MOC. But the follow-up status checks are not available online	See item #8	Time and resources	See item #8
5. Works in a way that is familiar	2	Contacts us is a familiar term on websites. Customers are also used to checking status and receiving regular updated through online channel	See item #8	Time and resources	See item #8
6. Requires no prior knowledge to use	4	No prior knowledge is required to use the online form			
7. Is agnostic of organizational structures	4	Customers are not required to know the internal structures to find or complete the online form			

A Good Service…	Rating	What is your service failing to do for users?	What does good look like for your service?	What's stopping your service doing this now?	What could you do to change it?
8. Requires the minimum possible steps to complete	2	Minimum number of fields are required to fill the initial form, but checking status is only through emails or phone calls	Customers can initiate a request and check regular status checks online as well. Multiple channels can be used for communications i.e. chat, text etc.	Time and resources	Develop an online portal where customers can self-serve status checks
9. Is consistent throughout	1	Contacting a department directly could produce different results compared to contacting the MOC. Acknowledgement letters from MOC and Dpt. may include different contact details	Service levels should be consistent through all channels/departments	Internal policy and procedures	See item #3
10. Has no dead ends	4	The current process does not have dead ends			
11. Is usable by everyone, equally	4	All users are able to use the service			

A Good Service…	Rating	What is your service failing to do for users?	What does good look like for your service?	What's stopping your service doing this now?	What could you do to change it?
12. Encourages the right behaviors from users and service providers	1	The right behavior could be to encourage online transactions. The current Contact us page promote call channel	The website encourages online forms over phone calls. Customers should be directed to the form other than to the list of phone numbers	Internal policy, procedures and a digital first strategy	Decide on the online services and digital first strategy and then design the content to push residents to use online forms rather than the phone channel
13. Responds to change quickly	1	The service is not integrated among the departments, therefore, changes are not propagated efficiently	All requests are consolidated within the CRM and integrated with the back-office systems where regular updates are automatically reflected in the CRM	Policy, procedures and past practices	See item #7
14. Clearly explains why a decision has been made	4	The service provides clear reasons for decisions			
15. Makes it easy to get human assistance	4	Call option is available online as the preferred channel.			

A Good Service…	Rating	What is your service failing to do for users?	What does good look like for your service?	What's stopping your service doing this now?	What could you do to change it?
Total Score	**42**	**Level 4**			

A 5.3.2 Scoring Levels Explained

0-20 – Level 1
It is not possible for all but the most expert and determined users to find and use this service. It may pose significant risks to those users who are able to use it by encouraging unsafe behaviours and may make it extremely difficult for users to understand and resolve issues when they arise.
21-30 – Level 2
Though a minority of users might be able to complete your service, it is unlikely to get them to the goal they need to achieve. The majority of your users are likely to struggle to find or use your service, either because it is not inclusive, or it is designed for expert use.
31-40 – Level 3
Though some users will be able to use your service to reach their desired goal, the service is still difficult to use for the majority of users and is likely to favour those with time and previous experience. Your users may face delays in the use of your service due to organizational silos or unnecessary bureaucracy and may still become confused by inconsistencies in the service or ways of working that are unfamiliar.
41-50 – Level 4
Most users are able to find and use your service successfully, although some users may still be excluded. A user's ability to achieve the goal they set out to achieve – in one seamless service – is still likely to be made more difficult by organizational silos or more inconsistencies in your service.
51-60 – Level 5
Your service is easily findable and usable by anyone who needs to use it, enabling all users to consistently achieve the goal they set out to achieve. Your service is likely to encourage behaviours that benefit not just your user and staff, but society and the planet as a whole. P.S. Well done!

A 5.4 MoC Process To-Be Service Recommendations

The consultants and the Whitby staff worked collaboratively to find improvements to the current service. The improvement ideas were conceptualized in a future to-be process map. Potential elimination and/or improvements to current tasks were identified and the potential time savings were estimated.

Note: The to-be service process was designed with the assumption of a Town-wide CRM system in place in the future state.

A 5.4.1 Service Improvement Summary

This section summarizes the Digital First service improvements and benefits. Further details are available below.

Improvement Impact(s) (low, medium, high)	High
# of Annual Transactions	700 requests / year (based on 2020 statistics)
# of Steps Eliminated or Improved	31 out of 50 steps eliminated or automated
Process Time Saved Per Transaction	45 minutes per Service Request (SR)
Elapsed Time Improvement	Varies
Estimated Cost Avoidance / Value of Time Saved Annually	$21,000

A 5.4.2 Proposed Day-In-The-Life Scenario

Chris is a resident of Whitby. During their morning walk, Chris notices a damaged stop sign. Chris using a smartphone, access the Town's online request page and fills out a simple service request. The contact details are automatically updated based on the customer account that Chris has created for other online services. Chris uploads a picture of the damaged sign and enter the location details in the online form before submitting. The system generates an automatic acknowledgement.

Based on pre-defined rules, this request is assigned a High priority and the system immediately routes the SR to the Public Works department. The request has been electronically transferred into the Work Management System and the service level standard is applied. Since this is a high priority item, the Public Works supervisor is alerted. The system identifies a crew that is scheduled to work in the same area on that day and automatically assigns to the crew. The Team Lead receives the alert on their mobile app. The crew visits the location and completes the job. The status of the SR is updated as complete. The Works Management System immediately sends an update to the CRM and the CRM sends a message to Chris informing that the damaged stop sign has been replaced and request Chris to complete a quick customer survey. Chris is surprised by how efficient the Town services are and gives a 5-star rating for the service.

The Works dashboard shows the performance of all SRs assigned to the Public Works Department.

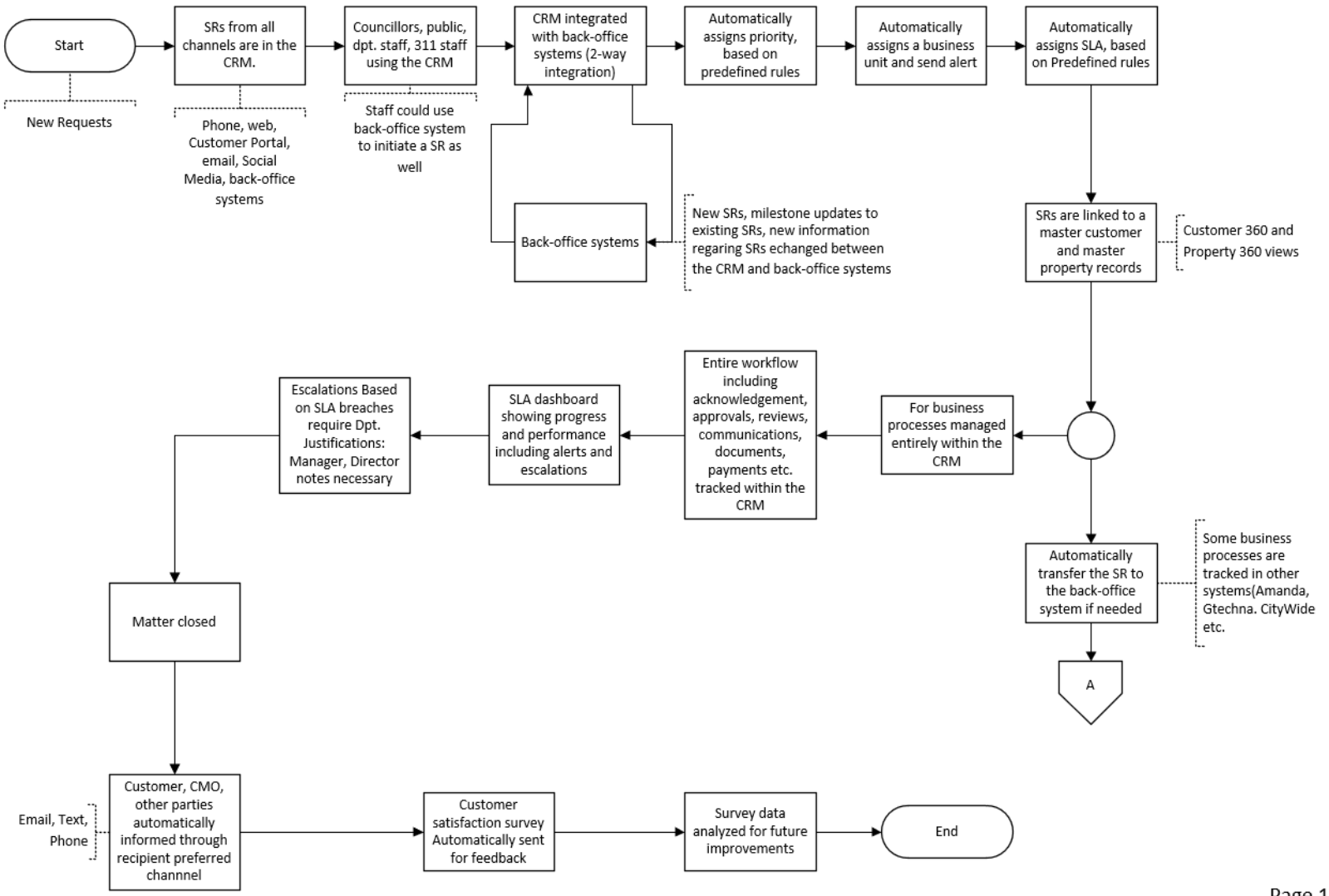
A 5.4.3 To-Be Process Map

The future ideal service map was formulated by incorporating digital improvements to the current process as discussed at the as-is workshop.

The technology capabilities and process re-design ideas were incorporated to build the high-level To-be Process Map. The to-be process map was shared with the subject matter experts and further improved.

Town of Whitby: MOC Request Tracking To-be Process Flow

Perry Group Consulting Ltd. October, 2021



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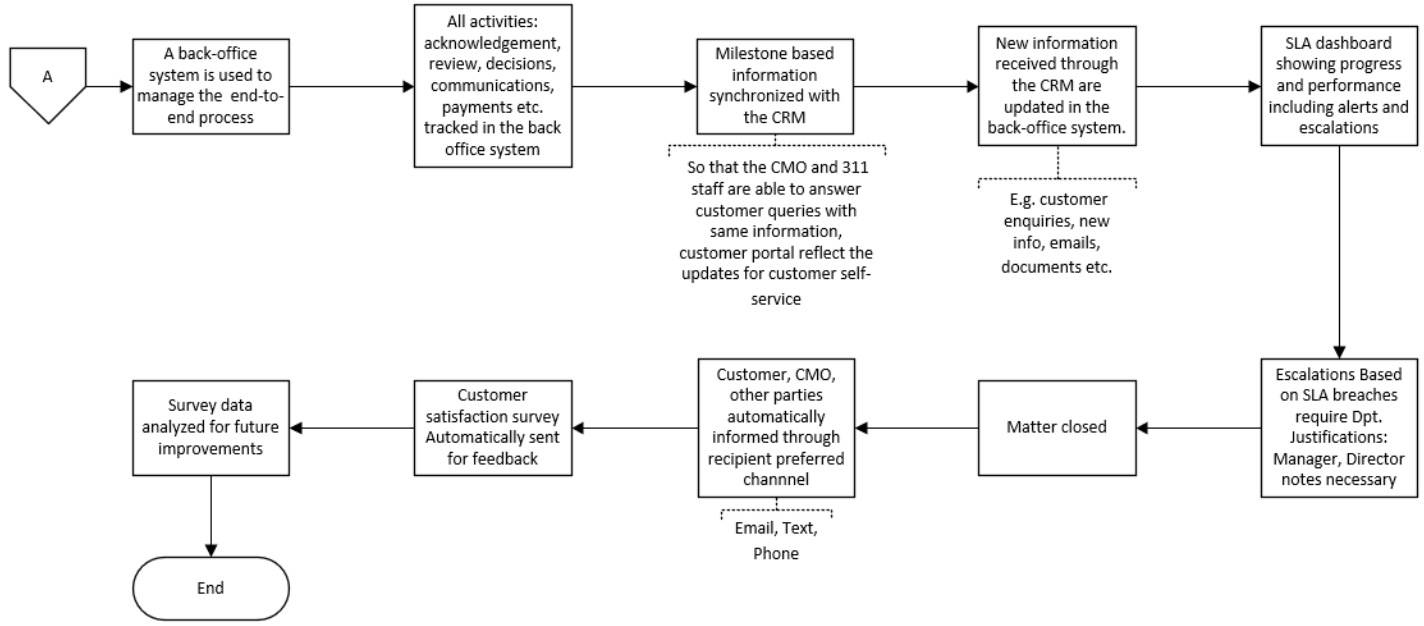
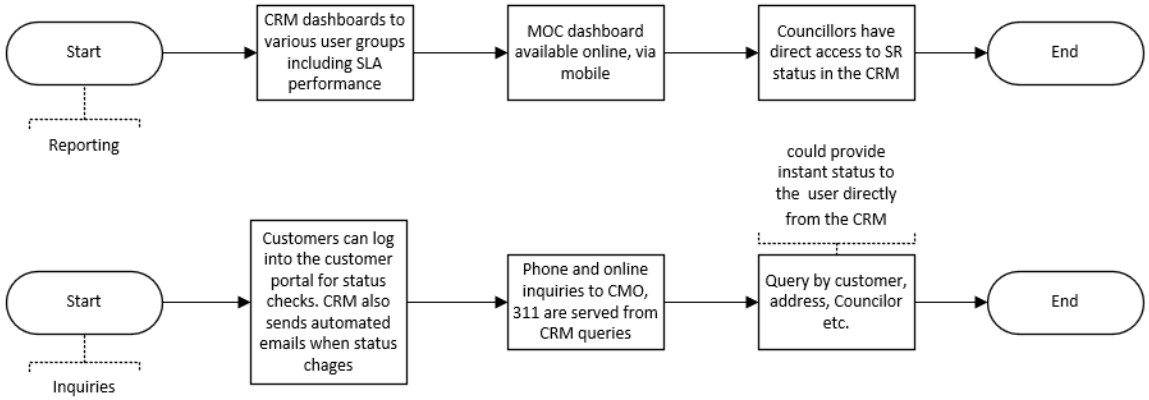
Town of Whitby: MOC Request Tracking To-be Process Flow

Perry Group Consulting Ltd. October, 2021





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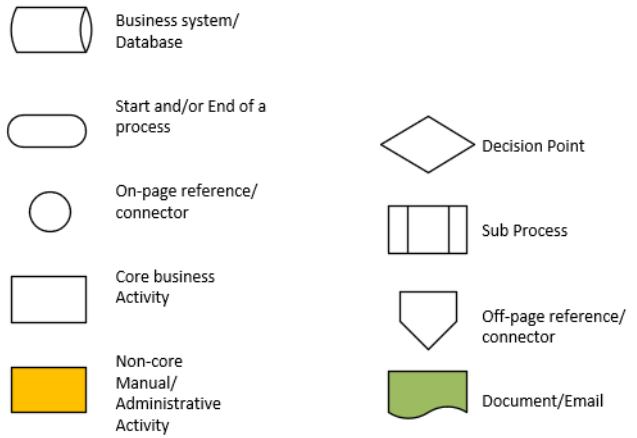
SR-Service Request
SLA-Service Level Agreement



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A 5.4.4 Process Changes

The following high-level process changes are recommended:

- Promote online self-service requests for customers as well as MoC.
- Build departmental escalations when the service levels are reached and/or breached.
- Review and optimize business processes prior to automating.

A 5.4.5 Policy Changes

The following high-level policy changes are recommended:

- Develop Service Level Agreements (SLAs) for all key service areas.
- Standardize the MoC service levels and direct department services. Keep SLAs consistent. If not, citizens will be calling MoC for better service. Such a situation may not be desirable.

A 5.4.6 People Changes

The following high-level people changes are recommended:

- Conduct careful change management including training and communication to all stakeholders, i.e., staff, customers, external and internal parties.
- Train and encourage departmental staff to update the system so that all SR tracking information is consolidated within the system. This should be enforced by management.

A 5.4.7 Technology Changes

The following high-level technology changes are recommended:

- Implementation of a CRM system is assumed in the future to-be process development. This assumption is recommended as well.
- Integrate the CRM with back-office systems (Amanda, gtechna, etc.). Automatically and seamlessly transfer new SRs from the CRM to the back-office system and do the same in reverse for status changes from the back-office system to the CRM.
- Integrate the CRM with the MS Office tools (e.g., Outlook) to automatically generate an SR in the CRM using an email in the inbox.

- Provide secure customer access via a CRM online portal. The online portal should be an extension of the CRM for all services.
- Provide Customer 360 and Property 360 views by linking SRs to existing master customer and master property datasets.
- Incorporate SLAs within the CRM.
- Implement dashboards for management, operational staff and the public to measure service performance against the published SLAs.
- Develop an easy-to-use user interface for the MoC to self-service the status checks of their SRs.
- Enable the CRM to automatically:
    - Set priority based on pre-defined rules.
    - Route to the appropriate business unit based on pre-defined criteria.
    - Assign SLAs based on pre-defined rules.
    - Send notifications triggered by milestone status changes.
- Make the CRM one of the systems to manage end-to-end business processes. This should be considered during the implementation of the CRM. The CRM should be reviewed for compatibility for those business areas that don't have a back-office system or are in the process of replacing, upgrading or decommissioning an existing system.
- Have the CRM send requests and collect customer survey data at the end of the SR process.

A 5.4.8 Service Model Changes

The current service requests managed by the MoC are heavily dependent on phone channel and emails. This model should be shifted to online self-service.

Customers and MoC should be encouraged to use the online channel to initiate and receive updates through an online portal rather than phone and emails.

A 5.4.9 Anticipated Challenges

- Time and resources to be assigned to make the changes
- Technical capabilities of the existing systems for systems integration
- Amalgamation of multiple online portals: CityWorks, ActiveNet, CRM, AMANDA, etc.

- Change management and user acceptance

A 5.4.10 Patterns in Use

The digital service provisioning requires certain standard patterns. The following table identifies the use of specific patterns applicable to this service.

Pattern	Description	Applicable
Apply	Completing an application to receive a service	
Be Notified	Receive alerts, notifications	Yes
Book	Book a room, item or an appointment for a specific date and time	Yes
Check	Check status, check eligibility, check what's closest, etc.	Yes
Get Information	Find info (read text on website, watch a video, download a doc, understand requirements, etc.)	Yes
Internal Workflow	Internal process, approvals, etc.	Yes
Pay	Pay a fee to the municipality	
Register	Create an account and come back using it to get updates, provide updates, etc.	
Request	Ask for something from the Town (copy of a certificate, a pass, ticket, etc.)	Yes
Tell	Report something, inform the Town of something	Yes

A 5.4.11 Optimization Benefits Estimates

The future digital process allows the automation and/or elimination of existing manual activities. The following table calculates estimated benefits to customers and internal staff.

	Customer Experience (CX)	CX Rating	Elapsed Time	Savings From Eliminated Activities	Documents
Current	There is a mix of intake channels for the MoC – emails, phone calls and online forms	Medium	N/A	50 steps in the current processes	10 documents received / generated
Future	Online self-service for the majority of the SRs	High	N/A	31 steps could be eliminated or improved through automation	All future documents can be digitized
Improvement		High	N/A	45 mnts. saved per SR	10 documents could be eliminated or digitized

Customer Experience Rating

High: Service can be accessed at anytime from anywhere; no need for face-to-face interactions; convenient to the customer and the staff.

Medium: While most actions are seamless, some tasks are inconvenient, e.g., print, sign and mail documents, make payments using a cheque.

Low: Requires a visit, print and mail, face-to-face interactions. No or limited online features available.

A 5.4.12 Estimated Benefits Summary

An average hourly rate of $50 has been applied for the calculations below. This is a rounded figure that includes the time spent by all levels of staff as well as the benefits.

Annual # of Transactions	# of Hours Saved per Transaction	Hourly Rate ($)	Cost Avoidance
700 SRs processed	45 mnts.	$50	$26,250
Total potential cost avoidance per annum @ 80% success rate*			$21,000 (100% = $6,250)

*This estimate is for MoC SRs only. A future CRM should digitize all key services Town-wide. The Town-wide cost avoidance of all SRs will be much higher than this estimate.

Appendix 6 – Modernizing Customer Payment Options

A 6.1 Background

Enabling online payments is a key capability of Digital First as it allows customers to pay for online services conveniently in one transaction.

The ability to make online payments is an expectation from customers who routinely see it for other online experiences, whether online point-of-purchase, complete a payment for a product or service through an online checkout (such as ActiveNet), payment portals, go to a site and pay an invoice (AR) or outstanding amount through an account or reference number (Paytickets.ca) or online banking (go through a financial institution or third party to access bill payment and eTransfer options, e.g., Whitby taxes).

Covid restrictions and customers seeking service outside traditional municipal operating hours have further driven this requirement.

It's also important to recognize that payment types need to be appropriate for the service and the channel in which the customer is engaged.

The June 2021 Customer Service Strategy – Final Report, identified areas requiring attention, namely, inconsistent payment options and limited technology to directly support customer service. In particular, the types of payments supported across services and divisions varied greatly with a couple of areas accepting a variety of payment methods, to others only accepting cheques.

The recommendations from the Report included defining the payment types the Town will take, assess the financial impact of changing available payment methods and determine payment types by service. Improving payment processes – particularly reducing the need for in-person payments and making online payments – would help to improve the customer experience and would ease the payment process.

TIS has developed out a payment solution for online forms (using eSolutions Form Builder and Moneris Payments). The solution includes criteria and roles and responsibilities but has had little uptake by the business.

The following is intended as a general description of the payment industry and options available.

A 6.2 Payment Method

There are many payment methods available to customers these days. The following describes the mainstream and emerging methods as well as some less common.

A 6.2.1 Mainstream Payment Methods

- **Cash** – Traditional payment method. Primarily used for in-person transactions. Variation in denomination and foreign currency exchange. Cost associated with accepting cash is the handling and processing time. Unable to be used for remote or online transactions.
- **Cheque** – Traditional payment method. Primarily used for in-person or mail-in transactions. Variation in amount, certification and foreign currency exchange. Cost associated with accepting cheques for the merchant is the handling and processing time. Funds from cheques are not immediate and subject to holding periods. Unable to be used for online transactions.
- **Credit Card** – Traditional payment method. Most flexible payment method, can be used cross channel: in-person, mail-in, online and phone. Variation in the credit card providers. Transaction posting is delayed. Fees to the user differ based on the card. Fee rates to the merchant vary based on transaction type (card / cardless / provider). Requires a third party for payment processing (such as Moneris). Premium fees can be charged by the merchant to the customer for use of credit card. Requires PCI compliance in order to handle credit card payments directly or use an online payment gateway to accept payments indirectly. Examples include Visa and Mastercard.
- **Debit Card** – Traditional payment method. Can be used in-person and in some cases online (or represented online as a credit card – such as Visa Debit). Debit cards draw funds directly from bank accounts. Transactions are in near-real-time. Fees cannot be charged by the merchant to the customer for debit transactions. Fees to the user differ based on the bank. Fee rates to the merchant vary based on transaction type (card / cardless / provider) but are typically cheaper than credit cards. Requires a third party for payment processing (such as Moneris). Requires PCI compliance in order to handle debit card payments directly or use an online payment gateway to accept payments indirectly. Interac is the primary interbank network that links banks and exchanges funds.
- **Electronic Fund Transfer (EFT)** – Payment method to transfer funds electronically between two bank accounts. Not used for real-time transactions. The EFT arrangements are scheduled payments – either one-time only or on a payment schedule. No fee to the customer. Fee to the merchant based on banking fees. Additional cost associated with process to set up and manage EFTs. Examples include monthly fitness membership payments, invoiced payment, quarterly property tax installments.

A 6.2.2 Emerging Payment Methods

- **Crypto Currency** – Emerging online digital currency. Online/mobile payment only. Record of the currency is stored in an online ledger. Need to sell currency to exchange to traditional currency. Subject to valuation. Currently not recognized as legal tender in Canada. Example, Bitcoin.
- **Mobile Payments** – A payment made for a product or service through a portable electronic device. Can also be associated with a digital wallet. The user either associates the payment application with a bank or credit account or leaves funds within the application to be drawn on. Use of the payment can be in-person through RFID, Bluetooth, QR scan or for online purchases. Fees to the user differ based on from where the funds are drawn. Fee rates to the merchant vary based on transaction type (card / cardless / debit / credit). Examples include Apple Pay, PayPal, Google Pay, etc.
- **Online Banking Bill Payment** – Payments can be made through financial institutions (either online or in-person) to registered Payees. Not intended for real-time purchases. An account number (property PIN, invoice number, etc.) is required to apply a payment. The municipality would need to register with financial institutions and provide rules for the account numbers. Regular banking fees would be applied to both the customer and the merchant. The bill payment solution does not validate payment amounts entered so partial or overpayments are possible. Example, Whitby Taxes.
- **Online Banking eTransfer** – Payments can be made through financial institutions online. The payments are made to a specific email address or SMS phone number. Not intended for real-time purchases, however, can be near-real-time. Options exist for registered email addresses and SMS phone numbers to automatically accept payments or require a password to access. For the merchant, the email recipient identifies to which account the funds are allocated, so controls need to be put in place to avoid theft. Regular banking fees would be applied to both the customer and the merchant. The eTransfer does not validate payment amounts entered, so partial or overpayments are possible. Limits are in place for sending and requesting funds (currently under review for business accounts).

A 6.2.3 Less Common Payment Methods

- **Prepaid/Loaded Cards** – Prepaid or preloaded cards have a balance of funds that can be drawn down on and in most cases replenished or topped up either manually or automatically based on preset levels. Fees associated with the cards are dependent on the card type. The cards typically require a specialized reader for in-person transactions or specialized applications to be read online. Federal Prepaid Payment Product Regulations exist to govern the use and distribution of cards. Examples include transit pass cards (Presto) or recreational promotion cards.

  In 2016, the government of Ontario also introduced a reloadable payment card for social assistance clients who are unable to open or maintain a bank account – these payment cards utilize common payment networks and financial

institutions (RBC Visa – Right Pay) and are starting to grow in popularity to provide digital payment methods to the "unbanked".

- **Third Party Services** – Other services exist to exchange funds such as Western Union or MoneyGram. While a method to receive funds, these services act as a payment broker and funds would be received by the municipality through other payment methods (EFT, debit, mobile payment, etc.). These services are options for those who do not have direct online access but are required to pay for an online service.

A 6.3 Payment Channels

The following table illustrates the channels by which various payment methods can be received.

The more traditional methods – in-person, mail, fax and phone – are self-explanatory, however, some of the other channels require additional explanation.

Service Kiosks have been investigated by some municipalities to provide a self-service option for customers, usually to supplement front counter service or provide online access.

Proprietary devices are required for closed operating systems usually associated with prepaid cards where the customer or staff tap the card to change the value. Most common in the municipal environment for transit passes (Presto), recreation memberships and gift cards.

Online payments can take several forms:

- Point-of-Purchase – Complete a payment for a product or service through an online checkout (such as ActiveNet).
- Payment Portals – Go to a site and pay an invoice or outstanding amount through an account or reference number (Paytickets.ca).
- Online banking – Go through a financial institution or third party to access bill payment and eTransfer options (Whitby Taxes).

Method	Payment Channel								
	In-Person	Mail	Fax	Service Kiosk	Phone	Proprietary Device	Online Point-of- Purchase	Online Payment Portal	Online Banking
Cash	x			x					
Cheque	x	x							
Credit Card	x	x	x	x	x		x	x	x
Cryptocurrency							x		
Debit Card	x			x			x	x	x
Electronic Fund Transfer								x	x
Mobile Payments	x			x			x	x	
Online Banking Bill Payment									x
Online Banking eTransfer									x
Prepaid Cards	x			x		x	x	x	
Third Party Services								x	x

A 6.4 In-Person vs Online Payments

The process of accepting payments online is not much different than accepting payments in-person with two notable exceptions. The online transaction is self-serviced and much of the online transaction is automated.

A 6.4.1 In-Person

In-person is often referred to as POS (point-of-sale) or terminal service.

- Service or product is provided.
- Payment options provided.
- Cash – no validation.
- Cheque – basic validation (validate for completeness and written on back).
- Credit/Debit transaction – payment terminal validation.
- Receipt and confirmation.
- Front counter reconciliation.
- Deposit.
- Back-office reconciliation (business unit and/or Finance).
- Funds allocated to business unit.

A 6.4.2 Online Payments

Online payments is considered a component of eCommerce.

- Service or product is provided.
- Online payment cart, self-validation of key information (address, contact information, order details), selection of payment type.
- Payment gateway service validates the payment.
- Receipt and confirmation (onscreen and email).
- Payment processor service transfers the funds between the customer and the municipality (near-real-time or batch transactions).

- Back-office reconciliation (business unit and/or Finance).
- Funds allocated to business unit.

A 6.4.3 Basics of Payment Processing

The payment processing industry comprises the companies offering payment services both to the bricks and mortar and eCommerce channels.

As the payment industry evolves, so do the services provided by the companies, ranging from simple gateway hosting services to fully featured integrated payment platforms. Notable companies in this space include Moneris, PayPal, Stripe, Square, Paymentus, PayIt, Bambora, Global Payments, and Helcim.

Key terms to be aware of:

- **Payment Gateway** – A technology that captures and transfers the payment information through physical devices or payment processing portals. The service acts as a conduit to pass transaction information to the financial institutions and provides the response for approved or declined transactions back to the customer. A variety of payment gateway options exist including:
    - **Hosted Integration Payment Gateways** – The customer is redirected from a checkout page to a Payment Service Provider (PSP) page. The customer enters payment details and the transaction is completed on the PSP. Once completed, the customer is redirected back to the checkout page to complete the checkout process. An IPN (Instant Payment Notification) is passed back. PCI compliance is the PSP's responsibility.

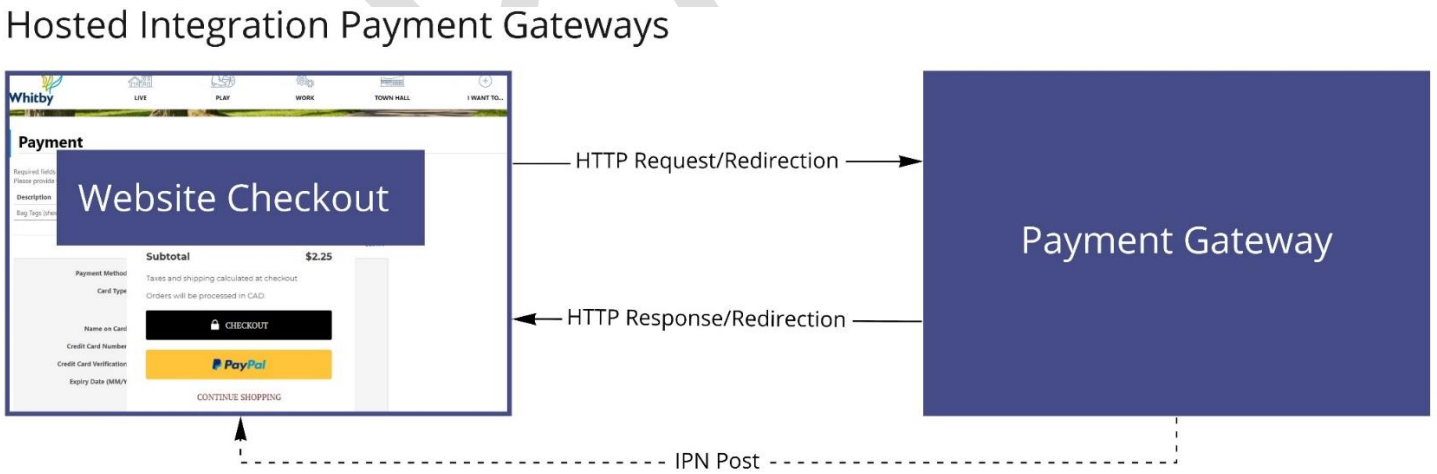


Figure 24: Hosted Integration Payment Gateway

- **Self-hosted (Direct Integration via API) Payment Gateways** – The customer enters payment details directly on your website as part of the checkout process. Once the payment details are entered, the collected data is submitted to the payment gateway's URL. Some gateways require data in specific formats while others need specific hash or security keys. An IPN is passed back. PCI is the responsibility of the site provider.

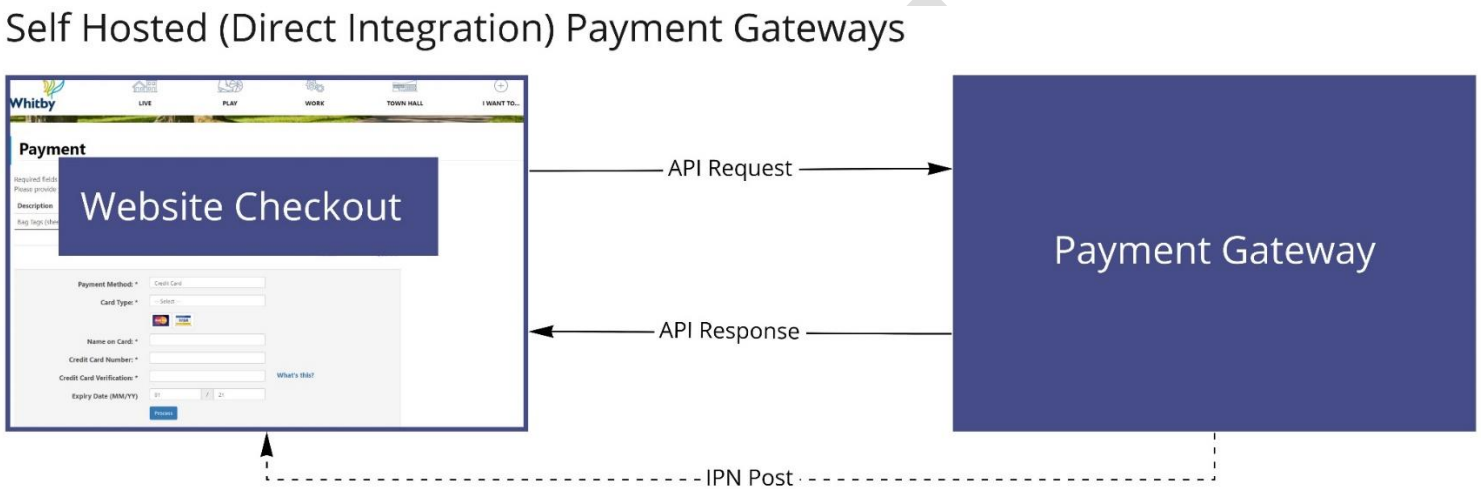


Figure 25: Self-Hosted (Direct Integration) Payment Gateways

- **Hybrid Integration (or API hosted) payment gateways** – Customers enter their payment information directly on your checkout page, however, credit/debit information fields are hosted (through API) and payments are processed using APIs or HTTPs queries. No IPN is passed back.

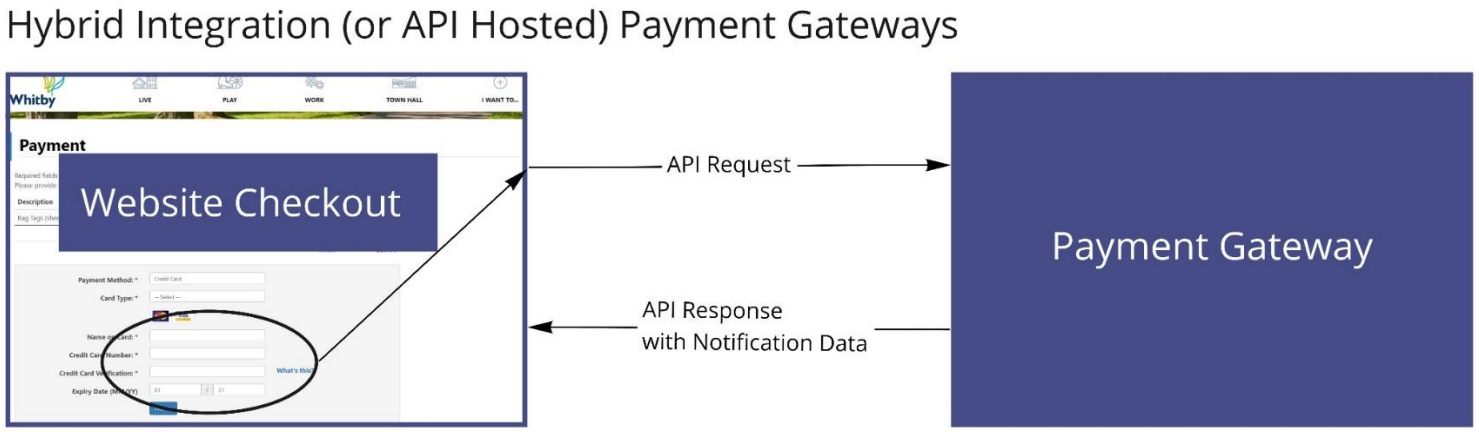


Figure 26: Hybrid Integration Payment Gateways

- **Local bank integration** – Redirect customers to a bank's website where they enter their payment information. After payment, the customer is redirected back to the merchant website with payment notification data. Note, when using a SaaS solution which includes payments, PCI compliance is the responsibility of the SaaS provider, however, the municipality maintains the obligation to ensure that the SaaS provider has a PCI compliant solution.
- **Payment Processor Service –** This is the service that authorizes transactions and transmits the data to clear and settle the transaction for the merchant, moving money from the Payee's (customer) account to the merchant (municipality's) account.
- **Issuer –** The bank or financial institution that issues the customer's credit, debit or digital payment.
- **Acquirers** – The bank or financial institution that holds the merchant account and settles the approved transaction.
- **Merchant Account** – The type of bank account needed for a business to accept and process card brand payments through debit or credit cards.
- **Card Brand Association** – Visa / Mastercard / American Express, etc.

A 6.4.4 Payment Lifecycle

Customer > Online Store > Payment Gateway >Payment Processor > Bank > Municipality

The diagram below illustrates the touchpoints in the payment lifecycle from when the customer provides transaction information through the authorization request to when the funds are sent and a verification code is returned to the customer.

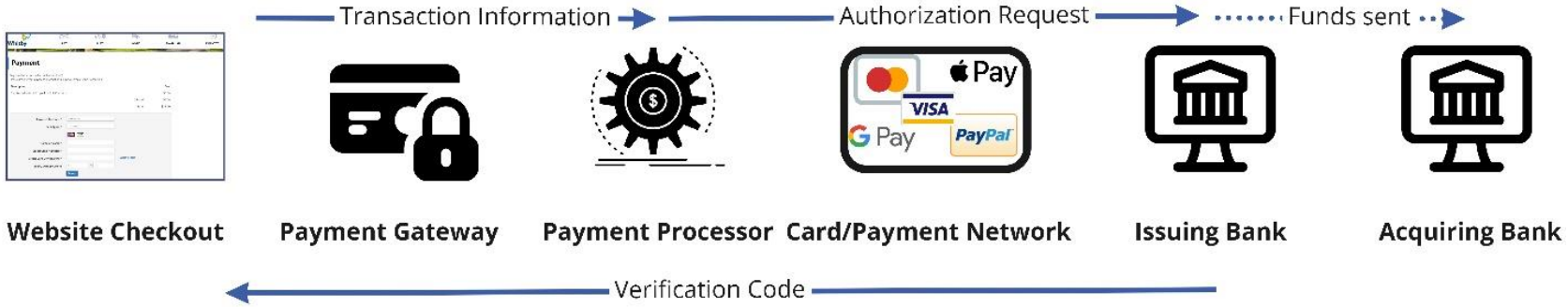


Figure 27: Payment Lifecycle

A 6.4.5 References

[Payment Gateway vs Payment Processor: Everything you need to know (ncr.com)]

[Different Types of Payment Gateways in E-Commerce (readybytes.in)]

[Payment gateway – Wikipedia]

[Understanding Payment Gateway – Run the Money]

[Integrating with the Moneris payment gateway - Announcements - Blogs - Moneris Community]

A 6.5 What's Needed for an Online Transaction?

A 6.5.1 For the Customer

- Internet access.
- Online payment method.
- Email address or SMS capable phone number.

A 6.5.1 For the Municipality

- Internet access.
- Application or service online.
- Online checkout or shopping cart.
- Payment Gateway service.
- Payment Processor service.
- Merchant Bank Account.

A 6.6 What Whitby Currently Has for Online Payments

Many of the solutions Whitby uses provide the option of accepting payments or connecting to a payment service.

Solution	Service(s)	Comments
ActiveNet	Recreation Programs, Memberships	Payment solution built into application. Integration with ActiveNet as export file with manual upload.
DocuPet	Cat and Dog Licenses	Payment solution built into application. Coupon incentive to purchase online. Reconciled monthly.
eSolutions Bids & Tenders	Purchasing Bid opportunities	Payment solution built into application.
eSolutions Form Builder with Moneris Integration	Garbage Bag Tags, FOI Requests and marriage licenses	Integration with Moneris. Integration to financials for reconciliation.
Online Banking – Bill Payment	Property Taxes	Offered through various financial institutions. Whitby Tax identified as Payee.
Paytickets.ca	Parking Tickets	Payment solution built into application. Fee of 1.75% to maximum $3 paid by user.

A 6.7 Suggested Approach

Most customers are already familiar with paying for services online. As a result, there is an expectation of what a good experience is, checking out or paying for online services. Some considerations for a successful online payment program:

- Ensure consistent online payment process and payment options. State the payment options up-front, before the customer reaches the payment stage, e.g., online payments are accepted using Visa, Mastercard, Visa Debit and PayPal. Any exceptions to the rules should also be noted up-front such as additional charges (Paytickets.ca) or exceptions like property taxes and high value development charges (in accordance with the Payment Policy).
- Encourage self-service wherever possible through marketing and promotion, making online payment options part of the convenience. Conversely, reduce cheque and cash intake options, where feasible.
- Whitby has several online payment solutions already available. Promote the digital services catalogue and, in turn, the ability to pay online. As new online services are introduced with payment options, uptake will increase in the customers' use of the online services.
- Ensure end-to-end process automation. Develop standard payment processes that not only serve the customer but also ensure minimal staff intervention as payments are submitted.
- Understand how the refund and adjustment processes work with each of the payment options.

A 6.8 Action

A 6.8.1 Develop Financial Policy to Support Payment Methods and Channels

Whitby has a Consolidated Fees & Charges By-law (#7220-17) in accordance with provincial legislation. To support the expansion of payment methods, payment channels and which services can be supported, a Payment Management Policy/Procedure needs to be developed.

Creating the policy ensures consistency in delivery of service payment methods of existing and future services and reflects the requirements for methods used. The policy should include:

- A Fees and Charges Catalogue by Service Type, Payment Method and Payment Channel.
- A processing fee payment model (incorporate into fees and Charges By-law).
- Identification of limitations by payment method (don't disincentivize business units).
- Set targets and audit service areas.

Appendix 7 – Digital Maturity Model

The Digital Maturity Model (DMM) is an evolving assessment framework that Perry Group has developed for use with municipal clients. It focuses on a variety of factors processed through the lens of people, process and technology.

The table below outlines the characteristics that municipalities would exhibit in each category of digital maturity of:

1. Resister
2. Early Experimenter
3. Digitally Accelerating
4. Digitally Transforming
5. Digital Leader

The Town of Whitby currently scores as Level 2 – an Early Experimenter.

1. Digital Resister

- No leadership, vision or strategy on digital along with an absence of governance and business strategies
- There are few digital skills within the organization which is typically unengaged, traditionalist and uncollaborative
- Business focus is not citizen centric and the approach on customer service is divergent and siloed between areas
- Corporate systems are absent or utilized < 10% leaving siloed areas largely reliant on inefficient manual workflows
- Digital service is hampered by an anti-cloud position with an overburdened IT acting as an "order taker"
- Data is looked at for compliance purposes versus rather than an asset that can be leveraged for efficiency and service delivery

2. Early Experimenter

- Some visioning around digital but there are competing views between service areas
- There are small pockets of digitally skilled, tech-savvy staff, but largely are unguided and unconnected – digital is explored off the side of their desks
- Culture is skeptical of change and project management is disconnected from corporate objectives and strategy
- Core business solutions are in place but are outdated, some digital tools but aren't fully leveraged or integrated as decisions are made by service areas directly
- Some collaborations between keeners in each areas, however, notions of digital differ widely
- No corporate standards, practices or resources are in place to support ideation and leverage digital tools already in place

3. Digitally Accelerating

- Governance is in place to align digital and business strategies with guidance from corporate policies, standards and a service inventory
- Recruitment and training efforts have some focus on increasing digital literacy and collaboration is ad-hoc, but occurring (internally and externally)
- Core high volume, cross-corporate processes are fully digitized end-to-end and if digital tools are not deployed, staff are finding and using their own to make work easier
- Agile approaches are used to support small and niche implementations and key digital platforms are in place but lack integration and consolidated value
- Current and target technology architecture is defined but some key systems and infrastructure are delaying growth of digital
- Digital processes and use of agile are designed to be repeatable and slowly scaling out and data analysis is assisting some areas in making better decisions

4. Digitally Transforming

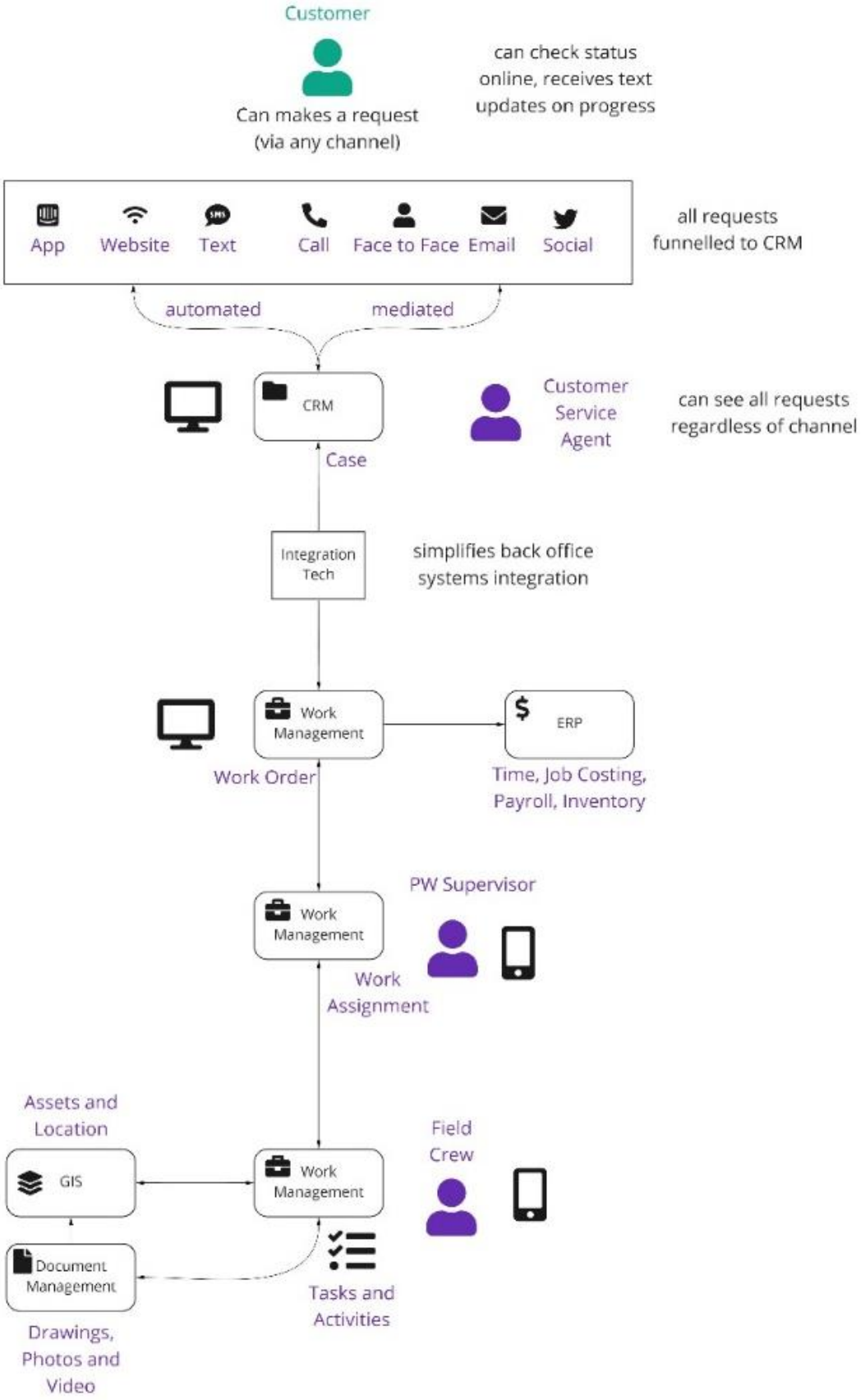
- Senior leadership and Council are formally behind digital transformation with alignment to strategies, talent recruitment and training
- Digital is embedded into business planning and service channels are used to index improvement projects delivered through agile and followed up by quality audits
- There is active engagement and collaboration with community and industry partners along with a 360 view of customers with a mission to exceed service standards/expectations
- An architecture function guides evolution of the technology landscape along with data governance and cloud adoption
- End-to-end processes are fully digitized and core systems are current, well utilized and managed as products vs. projects
- Customer profiles and predictive service delivery employed through some integration of web, a digital platform and a CRM – not employing all capabilities but priorities are reviewed to support forward momentum

5. Digital Leader

- Digital is the mantra of the organization driven by aligned leadership and governance who focus on the "art of the possible" vs. digital transformation
- Experimentation, collaboration and coproduction *are* business as usual and all areas employ a design-thinking approach to meet and optimize service standards
- Digital inclusion opportunities are made available through community partnerships and customers are actively involved in shaping/prioritizing how service is delivered
- Modern, digital and mobile platforms in place evolve alongside defined architecture and a roadmap that standardizes digital/cloud/data-first
- Digital service channels are supported by web and CRM which provide predictive service to citizens and improved using aggregated service data
- Business processes are geo-coded, IoT based infrastructure is the norm and machine learning/AI is employed to make work more efficient

Figure 28: Whitby's DMM Assessment

Appendix 8 – Digitized Platform Workflow



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