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Digital Infrastructure Plan

DIGITAL AUTONOMY ENGAGEMENT SUMMARY REPORT

SEPTEMBER 2021

Prepared by LURA Consulting for the City of Toronto

▥ TORONTO

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Executive Summary

The use of digital infrastructure is one of many tools to help the City of Toronto achieve its strategic goals and priorities. As the use of digital infrastructure to provide City services and manage City assets evolves, the way in which information is collected, used, managed and protected must also evolve. The Digital Infrastructure Plan (DIP) will modernize and formalize the roles, functions and procedures within which digital infrastructure decisions at the City are made.

This round of consultation for the DIP was designed to inform the City on the creation of a sixth principle, Digital Autonomy. Digital Autonomy refers to the City's ability to develop, maintain and control the selection, use and design of its digital infrastructure to deliver public services and advance the public interest, as informed by legislation and community consultation. The primary purpose of the consultations on Digital Autonomy was to obtain feedback on the proposed definition, policy objectives, vision statement and implementation.

Efforts to engage the public included a public meeting, feedback form, opportunities to email responses and a Community Advisory Group (CAG) meeting. This report summarizes the feedback received on Digital Autonomy from these engagements.

Digital Autonomy Definition

- Most questionnaire participants agreed with the proposed definition of Digital Autonomy.

- Participants who did not agree with the proposed definition indicated that it was too vague, incomplete and unclear. It was noted that certain terms required additional definition.

- It was also suggested that the Digital Autonomy definition should capture important aspects of autonomy, include digital infrastructure asset maintenance and retirement (end-of-life) phases and make reference to the need of the general public.

- Most questionnaire participants agreed with the City's proposal to add Digital Autonomy as a sixth principle of the DIP.

Overall Policy Objectives

- Most questionnaire participants indicated that the policy objectives for Digital Autonomy were suitable.

- However, it was noted that the policy objectives do not address the full range of concerns related to Digital Autonomy.

- Data ownership/licensing and "Right to Modify" were identified as objectives that were missing.

Open Source

- Half of the questionnaire participants indicated that Open Source as a policy objective mattered very much to them.

- Clarification on who and how code sharing would take place was requested. It was suggested that the intention appeared to be software/code sharing with other governments and that the general public may not have a personal use for this code.

- Participants indicated that implementation challenges, issues of training and policies that promote digital process and procedures amongst City staff should be addressed in an Open Source policy.

Open Standards

- Most questionnaire participants indicated that Open Standards as a policy objective mattered very much to them.

- Participants noted that they would like to see the City as a contributor to emerging open standards, not just a consumer of standards set by other standards bodies.

- It was also noted that while the City should adopt open standards where possible, there is not a standard for everything. data

- Participants also noted that issues of transparency, cyber security and poor accessibility should be addressed through this policy.

Open Contracting

- Most questionnaire participants indicated that Open Contracting mattered somewhat to them.

- Opposition towards the approach was also shown. It was suggested that Open Contracting should also apply to the process of determining needs and agreeing on solutions.

- Participants noted that procurement policies are not open if procurement staff make every decision without involving end-users in a value analysis.

- Security from criminal infiltration, transparency and accountability of the contracting process were mentioned as an outcome participants would like to see delivered.

- Participants also identified that they would like to see the City actively promote a competitive and engaged digital infrastructure vendor community, committed to helping the City achieve well-being and prosperity for residents.

Data Residency in Canada

- Most questionnaire respondents indicated that Data Residency in Canada mattered to them.

- Participants noted that data should be protected, secure and remain at the source where it was created.

- Some participants noted that issues of security should be addressed through the Data Residency policy.

- Others noted that Data Residency is one strategy for data security, but it is not necessary. It was recognized however that Data Residency mitigates implementation error and accidental disclosure.

Right to Repair Digital Infrastructure

- Most questionnaire participants indicated that a Right to Repair policy matters very much.

- It was suggested that the Right to Repair statement should be re-written to convey the idea that the City will maintain sovereignty over the maintenance, and repair of any digital infrastructure assets that it uses either directly, through its own interventions, or indirectly, through a vendor.

- Increased recycling, less landfill waste and reduced environmental waste were also identified as outcomes that participants would like to see delivered.

- Issues of poor-quality repairs, ease of repair and transparency were identified as issues to be addressed in this policy.

Draft Vision Statement

- Most questionnaire participants agreed with the proposed vision statement for Digital Autonomy.

- Participants noted that the vision statement for Digital Autonomy was too vague. Additional information on specific threats to Digital Autonomy and on the general public perspective were requested.

- Additional definitions for specific terminology were also requested.

Digital Autonomy Implementation

- Most questionnaire participants agreed with the proposed implementation points for Digital Autonomy.

- However, it was recommended that a specified timeline for implementation was needed to keep this work on track. It was also recommended that an accountability mechanism or implementation tracker be used to ensure that Digital Autonomy work is not postponed.

Section 1: Project Overview

Digital Infrastructure is defined as: infrastructure that creates, exchanges or uses data or information as part of its operation. Digital infrastructure includes physical structures, cabling and network systems, software systems, data standards and protocols as well as the data itself. Some examples include sensors (cameras, GPS sensors, microphones, etc.), broadband and telephone networks, Wi-Fi, desktop software, web pages, and mobile apps and open data standards. This section will provide a high-level overview of the DIP project. It will also include the purpose and objectives of this round of engagement on digital autonomy.

DIP Overview

The use of digital infrastructure is one of many tools to help the City of Toronto achieve its strategic goals and priorities. As the use of digital infrastructure to provide City services and manage City assets evolves, the way in which information is collected, used, managed and protected must also evolve. The Digital Infrastructure Plan (DIP) will modernize and formalize the roles, functions and procedures within which digital infrastructure decisions at the City are made.

The DIP is envisaged as a tool to help guide day-to-day as well as long-term decisions related to digital infrastructure. It will also be used to help evaluate internal and external proposals in the digital realm. Creating a DIP is a significant undertaking due to the scope of work and complexity of issues. The starting point to develop the DIP is to build consensus around a set of clear ethical principles that articulate a vision for the use of digital infrastructure and guide decision-making. Additional work required to develop the DIP includes:

- Implementing a Community Advisory Group;
- Researching matters related to data governance;
- Creating application and evaluation standards;
- Clarifying internal City processes; and
- Developing fine-grained implementation policies.

Consultation with stakeholders, members of the public and other groups is fundamental to developing the DIP.

Digital Autonomy

Digital Autonomy refers to the City's ability to develop, maintain and control the selection, use and design of its digital infrastructure to deliver public services and advance the public interest, as informed by legislation and community consultation.

Engagement Purpose and Objectives

This public consultation is about "Digital Autonomy", including what it is, what it means, when it applies, and how it is related to the DIP.

Through public and stakeholder feedback, the City is hoping to:

- Comprehensively define the scope of Digital Autonomy
- Identify all applicable issues
- Identify issues that do not fit
- Identify issues that require additional discussion or consideration

Summary Report Contents

This engagement summary report documents the results of the Community Advisory Group meeting, the public meeting and the online questionnaire that comprised the engagement process on Digital Autonomy. It highlights the engagement methods used to gather public input and includes an analysis of the feedback received. This feedback will be reviewed and considered by the project team and will influence the development of the draft DIP. The report concludes with an overview of next steps for the project including engagement opportunities for future phases of the project.

Report Methodology

All comments received at the public meetings and through the online questionnaire have undergone a thematic analysis. This involves summarizing and categorizing qualitative data so that important concepts within the dataset are captured. Once the thematic analysis was completed for each question, the collection of themes was used to formulate the descriptive text in this report. It is important to note that comments received were wide-ranging. A fulsome documentation of all feedback can be found in Appendix A, Appendix B and Appendix C of this report.

Section 2: Engagement and Communication Methods

This section summarizes the engagement and communication methods used for consultations on Digital Autonomy.

Engagement Methods

Several methods were used to engage with members of the public about Digital Autonomy. The following is a summary of the various methods used.

Public Meeting

On Monday June 21, 2021, the City of Toronto hosted a virtual public meeting related to Digital Autonomy on Webex. The project team and representatives from other City Divisions attended the meeting to help answer questions. A presentation was given on the DIP background, the consultation process and Digital Autonomy. After the presentation, participants were given the opportunity to ask questions. A non-verbatim summary of the Q&A session can be found in **Appendix A**. The virtual meeting was attended by approximately 60 people.

A copy of the presentation slides were made available online for public review.

A recording of the meeting was also made available on the City's YouTube channel and was viewed 35 times.

Online Feedback Form

An online feedback form was also posted through the Checkmarket platform for participants to provide input on Digital Autonomy. This questionnaire was made available from June 21, 2021 to July 6, 2021. The form was completed by 18 respondents. The verbatim feedback responses can be found in **Appendix B**.

Email

In addition to the public meeting and completing the feedback form, participants were encouraged to share their thoughts on Digital Autonomy by emailing the dedicated project address (digitalfeedback@toronto.ca). Email responses received can be found in **Appendix C**.

CAG Meeting

A Community Advisory Group (CAG) meeting was held on June 7, 2021. The meeting presentation was given in two parts. The first part provided an update on the Digital Infrastructure Plan (DIP) for the CAG, including a review of the scope and use of the Plan, City Council direction on the Plan, the Plan's five working principles, the proposed layout of the Plan, and the addition of a sixth principle, Digital Autonomy. In the second part, details were provided on Digital Autonomy including a draft definition and vision statement, and the six elements of Digital Autonomy. An overview of the consultation process on Digital Autonomy was also presented. Following the presentation, a

Q&A/commenting session was facilitated. CAG members then discussed the public consultation approach and the Digital Autonomy elements.

A summary of the CAG meeting can be found in **Appendix D**.

Communications Methods and Reach

Several communications channels were used to reach out to members of the public about Digital Autonomy. The following is a summary of the various methods used.

Outreach

The City of Toronto promoted the virtual public meeting and feedback form through the DIP e-bulletin, City Councillor networks and social media. Information provided contained a brief about the project and an invitation to attend the virtual public meeting. Members of the public were also encouraged to visit the project website to learn more information.

The City also used its Twitter account to promote the virtual public meeting and feedback form.

Project Webpage

The DIP project webpage acts as a communications portal to inform the public about the project. This webpage hosts all information on the project including general information, information on how to participate, a link to the feedback form, previous public consultation materials and an option to subscribe for DIP-related e-updates.

Engagement and Reach

The following table provides a summary of the reach of engagement or communications tactics during the engagement period.

Engagement/Communications Tool	Participation and Reach
Virtual Public Meeting	• 60 participants • 35 views on YouTube after the meeting
Feedback Form	• 18 participants
Email Outreach	• 490 e-bulletin subscribers

Section 3: What We Heard

Participant feedback was sought to influence the development of a sixth guiding principle, Digital Autonomy, for the Digital Infrastructure Plan (DIP). Participants were asked to provide feedback on the draft definition and the policy objectives.

The following is a summary of feedback received on Digital Autonomy and the policy objectives.

Overall Key Messages

Feedback presented specific to the Digital Autonomy definition, principles, vision statement and implementation is found below. Across all feedback, several recurring key messages emerged. These overall key messages are as follows:

Digital Autonomy Definition

The definition presented was as follows: *Digital Autonomy refers to the City's ability to develop, maintain and control the selection, use and design of its digital infrastructure to deliver public services and advance the public interest, as informed by legislation and community consultation.*

Key Points of Feedback

- Most questionnaire participants (72%) agreed with the proposed definition of Digital Autonomy.

- Participants who did not agree with the proposed definition indicated that it was too vague, incomplete and unclear.

- It was noted that certain terms such as 'develop, maintain and control' should be further defined. Additional definitions were suggested to distinguish between "data" and "information".

- It was also suggested that the definition should capture important aspects of autonomy – i.e., being free, informed and uncoerced. Suggestions to replace existing text with words reflecting this independence were made. The addition of another sentence to the existing definition to describe this was also suggested.

- It was noted that the draft definition does not include digital infrastructure asset maintenance and retirement (end-of-life) phases. It was suggested that consideration should be given to explicitly recording all applicable lifecycle steps.

- It was noted that a general public perspective was also missing from the Digital Autonomy definition. It was suggested that reference to the needs of the general public to adapt to living in a digital realm should be added to the definition.

- Feedback indicated that to be transparent, the City should attribute the jurisdictions and subject matter experts consulted as part of their research.

Overall Policy Objectives

- Most questionnaire participants (61%) indicated that the policy objectives for Digital Autonomy were suitable.

- It was noted that the policy objectives do not address the full range of concerns related to Digital Autonomy. It was noted that principles in Montreal's Digital Data Charter or London's Emerging Technology Charter were more comprehensive and up-to-date.

- Data ownership/licensing was identified as an objective that was missing. It was noted that many municipalities accidentally end up in agreements where they need to pay vendors to access or export data.

- "Right to Modify" was also suggested as another objective. It was noted that this could apply to both data (i.e., replacing the vendor's firmware on a sensor) and physical infrastructure (i.e., renting rather than owning and retaining the option to purchase later).

- Consideration to the design, and development, of a standards compendium on applicable security industry standards from a Digital Autonomy objective was suggested. It was noted that this was important to defend, rationalize or attribute the City's security decisions and actions.

- Participants noted that policy objectives should also relate to individuals without specialized knowledge in technology or digital infrastructure. As an example, it was noted that the City's website was not user-friendly and difficult to navigate.

Open Source

- Half of the questionnaire participants (50%) indicated that Open Source as a policy objective mattered very much to them.

- It was suggested that Open Source practices be governed by security industry standards that address open source software use and origination in a government context, secure systems engineering, and secure code supply chain management and manufacture.

- Interest was raised about the extent to which open source is already in use at the City this and whether this policy objective was a deviation from what currently exists or merely formalizing an existing process.

What outcomes would you like to be delivered from the Open Source policy objective?

- Clarification on who code sharing would occur with and how it would take place was requested. It was suggested that the intention appeared to be software/code sharing with other governments and that the general public may not have a personal use for this code.

- It was suggested that multiple municipalities could pool resources to develop open-source software for their common use.

- An environmental scan of how other municipalities have approached open source was also recommended.
- Participants noted that easier accessibility to information on the City website including Council Meetings and other public meeting results was an outcome they would like to see delivered.

What issues would you like to see addressed in an Open Source policy?

- Participants noted that they would like to see the challenges that governments face when attempting to implement Open Source policy addressed.
- It was also suggested that policies that promote digital process and procedures amongst City staff should be addressed.
- Participants noted that they would like to see the improvement of the functionality of the City of Toronto website addressed through this policy.

Open Standards

- Most questionnaire participants (56%) indicated that Open Standards as a policy objective mattered very much to them.

What outcomes would you like to be delivered from the Open Standards policy objective?

- Participants noted that they would like to see the City as a contributor to emerging open standards, not just a consumer of standards set by other standards bodies.
- Suggestions were made that the City develop the following relating to non-compliance to standards:
  - An exception handling process to address non-compliance to standards
  - Non-compliance use cases that document allowable deviations from standards' requirements/specifications
  - Requirements that must be satisfied in order to take leave of compliance to standards
  - Controls and countermeasures, to be implemented in approved non-compliance scenarios
  - Time limitations during which the exemption to standards will be granted and remain in force.
- It was noted that easier access to and understanding of City information was an outcome participants would like to see delivered.

What issues would you like to see addressed in an Open Standards policy?

- Participants noted that the standards bodies mentioned in the policy are not the correct bodies to be looking at, as few of them had any impact on Digital

Autonomy. It was suggested that the City look at the Open Mobility Foundation, and initiatives around algorithmic transparency.

- It was also noted that while the City should adopt open standards where possible, there is not a standard for everything. It was recommended that the City define and document the formats it uses, to ease interoperability. It was suggested that data be accompanied by a data dictionary, to define and specify the data elements.

- Participants noted that corrections of the installations that historically did not follow international standards should be made over time.

- Participants also noted that issues of transparency should be addressed through this policy. It was noted that yearly audits were preferred.

- It was also noted that issues of cyber security and poor accessibility to information of the City website should be addressed through this policy.

Open Contracting

- Most questionnaire participants (61%) indicated that Open Contracting mattered somewhat to them.

- Interest was raised on whether the City would go to open contracting/tender for everything.

Do you agree with how we have approached Open Contracting?

- Most participant feedback indicated agreement with the approach to Open Contracting. Openness and transparency were highlighted as positives in this approach.

- It was noted that this approach could make the procurement process more user-friendly and help individuals who are not contractors do business with the City.

- Opposition towards the approach was also shown. It was suggested that Open Contracting should also apply to the process of determining needs and of agreeing on solutions. Participants noted that procurement policies are not open if procurement staff make every decision (typically based on financial and pricing data) without involving end-users in a value analysis. It was also noted that the current policy focuses too much on information.

- More information was requested on what happens after the City compares existing purchasing policies and procedures to identify areas of improvement.

What outcomes would you like to be delivered from Open Contracting?

- Security from criminal infiltration of the contracting process was also mentioned as an outcome participants would like to see delivered.

- Verification and enforcement of the open contracting process, as well as explanations when there are exceptions was needed.

- Increased transparency in access and ability in the procurement process to the public was identified as an outcome that should be delivered. It was noted that registration to a portal to view Request for Proposals (RFPs) is a barrier to residents. It was recommended that the RFPs get posted to the City's web page instead.

- It was identified that outcomes need to account for how rights and legal are factored into each individual contract and how these processes are negotiated.

- It was noted that an open contracting process that improves accountability should ensure that everything happening in the negotiation process be open to everyone and offer opportunities to challenge a decision if it does not follow the guiding principles.

- Participants also identified that they would like to see the City actively promote a competitive and engaged digital infrastructure vendor community, committed to helping the City achieve well-being and prosperity for residents. It was noted that vendors should go beyond just trying to meet their contractual obligations.

- An opportunity for procurement to promote equity, sustainability and inclusion was recognized.

- Participants indicated that they would like to see user-friendly operation of access to information for business with the City.

Data Residency in Canada

- Overall, most questionnaire respondents indicated that Data Residency mattered to them. 44% indicated that Data Residency mattered very much, and 17% indicated that Data Residency mattered somewhat to them.

- Interest was shown in how Data Residency is impacted by trade agreements and other requirements set by higher orders of government.

What outcomes would you like to be delivered from the Data Residency in Canada policy objective?

- Participants noted that data should be protected, secure and remain at the source where it was created. Allowing data to go out of Canada was identified as a risk for the security and confidentiality of information. It was suggested that any use of the data should be fully disclosed to all residents.

- A base set of generally accepted cloud security standards to be used to evaluate service provider conformance was identified as an outcome to be delivered through this policy.

- Participants highlighted the importance of data security as part of this policy objective. It was noted that international hacking and data misuse are already present issues with data security.

- Alternatively, it was also noted that Data Residency policies contribute nothing to maintaining privacy or security, and that they limit the City's ability to work with world-class technologies and services.

What issues would you like to see addressed in a Data Residency Policy?

- Some participants noted that issues of security should be addressed through the Data Residency policy.
- Others noted that Data residency is one strategy for data security, but it is not necessary. It was noted that secure portals, encrypted data and City-only access to encryption keys are also strategies for security. It was recognized however that Data Residency mitigates implementation error and accidental disclosure.
- It was recommended that an explanation on why Data Residency is needed be included.

Right to Repair Digital Infrastructure

- Most questionnaire participants (69%) indicated that a Right to Repair policy matters very much.

- It was suggested that consideration be given to understanding the feasibility of realizing this objective that assumes staff expertise and familiarity with technology. It was noted that the City's digital infrastructure footprint is comprised of several different technology products. Staff would need to be as familiar with the digital infrastructure components as the vendors themselves and possess engineering capabilities to troubleshoot and remediate problems in order for the City to achieve full autonomy. It was suggested that the City conduct a comparative cost analysis to determine whether an in-house repair model is more cost effective than a vendor-dependent repair model.

- It was suggested that the Right-to-Repair statement should be re-written to convey the idea that the City will maintain sovereignty over the maintenance, and repair of any digital infrastructure assets that it uses either directly, through its own interventions, or indirectly, through a vendor.

- It was noted that there are currently few opportunities to express this right to repair technology.

What outcomes would you like to be delivered through the Right to Repair policy objective?

- Participants noted that they would like to see a right to repair wherever and whenever as an outcome of this policy.

- Increased recycling, less landfill waste and reduced environmental waste were also identified as outcomes that participants would like to see delivered.

- Issues of data security were identified with this policy. It was noted that individuals hired to fix the infrastructure will be subject to confidentiality. Concerns about whether the City could ensure data security because of this were raised.

What issues would you like to see addressed in a Right to Repair Policy?

- The implementation challenges of this policy were identified as an issue that needs to be addressed. It was suggested that the City plan for how the policy will be successful in practice.

- Issues of poor-quality repairs by multinational vendors was also identified as an issue to be addressed in this policy.

- It was also noted that issues of ease of repair should also be addressed. Consideration on the obligations of the vendor to provide information to ease repair should be given.

- Issues of transparency were identified as needing to be addressed through this policy. It was noted that regular audits that can be understood by the public should be done yearly

Digital Autonomy as a Sixth Guiding Principle

- Most questionnaire participants (75%) agreed with the City's proposal to add Digital Autonomy as a sixth principle of the DIP.

- It was noted that positive outcomes of this principle will depend on proper management of the DIP by the City.

Draft Vision Statement for Digital Autonomy

The vision statement presented was as follows: *The City will maintain control in the selection, use and design of its digital infrastructure, so that it can act with autonomy and in a self-determined manner within the digital realm.*

- Most questionnaire participants (56%) agreed with the proposed vision statement for Digital Autonomy.

Would you propose any modifications to the vision statement for Digital Autonomy?

- Participants noted that the vision statement for Digital Autonomy was too vague.

- It was also noted that the vision statement needed to name the specific threats to Digital Autonomy.

- Participants suggested that the province should not be given any control on the selection, use and design of the City's digital infrastructure. It was also noted that there should be strict protocols and safeguards in place for City staff and politicians.

- It was suggested that focus groups are held with the public to determine whether the vision is understood by the average person.

- The use of the terminology 'maintain control', act with autonomy and "self-determined" was applauded. It was suggested that similar terms be added to the definition of Digital Autonomy as the two statements did not align.

- It was also noted that a general public perspective was missing from the vision statement for Digital Autonomy. It was suggested that reference to the needs of residents to transitioning to living in a digital realm should be added to the vision statement. It was also suggested that the vision statement consider the general public's need for autonomy and control in the digital realm.

- Definitions for "autonomy", "self-determined manner" and digital realm were requested.

Digital Autonomy Implementation

- Most questionnaire participants (62%) agreed with the proposed implementation points for Digital Autonomy.

- However, it was recommended that a specified timeline for implementation was needed to keep this work on track. It was recommended that an accountability mechanism or implementation tracker be used to ensure that Digital Autonomy does not end up as a continually postponed part of the plan.

- It was also noted that increased input from the community was needed on the implementation of Digital Autonomy.

Additional Comments

Participants were given the opportunity to provide additional comments, which included the following:

- It was noted that the current user experience of finding information from the City (i.e. Council resolutions, meeting outcomes) was very poor.

- An idea for a resident reporting button online to include "Report Accessibility and Data Errors" was recommended.

- Opportunities for the City to promote the use of common internet network infrastructure were identified. It was noted that internet in Toronto is controlled by a select few telecommunications companies that do not want to share their infrastructure, Because of that, development of the City has been contained.

- It was identified that an enhanced digital strategy will increase productivity at the City.

- It was recognized that autonomy also extends to the realm of interoperability and data sovereignty, including but not limited to Indigenous data sovereignty.

- Additional suggestions were made to the definition of Digital Infrastructure to consider reflecting data transformation stated using the convention CRUD (Create, Read, Update, Delete). It was also suggested that the definition also include reference to cyberphysical structures (CPS) as there are instances of CPS' (sensors) included in the infrastructure list in the presentation.

- It was also recommended that a baseline for security-related considerations be reflected and embedded, in each procurement method used by the City.

Additional Questions

Participants were given the opportunity to ask additional questions, which included the following:

- If the draft definition presents forward-looking objectives for target operating environment (TOE) realization, how does it reflect net-new objectives not already part of the City's current technology infrastructure model?

- Is the reference to "ability" in the draft definition meant to signify some form of future-state, unfettered, unilateral technology stewardship capability that it does not enjoy at present?

- Is the definition meant to convey the City's business-as-usual (BAU), or desired for target operating environment (TOE) position?

- What is the precise Digital Autonomy provenance/scope of interest? Are Agencies and Corporations included? De-centralized IT instances? Corporate IT only?

- On what basis were the objectives cited determined to represent Digital Autonomy? What rationale was used to select these objectives over other candidate objectives?

- Is there an expectation that Digital Autonomy principles will apply retroactively to the City's legacy assets found in the production environment?

- How do parallel community networking initiatives in Toronto that address digital access in terms of disadvantage and social policy fit into this planning?

- To what degree is Digital Autonomy an emerging issue in other Canadian municipalities, and does it come into conflict with national policy to view telecommunications and connectivity as market-based?

Section 4: Next Steps

A report on consultation about Digital Autonomy was brought to the General Government and Licensing Committee meeting on June 29, 2021.. Additional virtual public consultations are anticipated in Fall 2021 as the draft Digital Infrastructure Plan (DIP) is developed.

Appendix A: Public Meeting Q&A

The following is a non-verbatim summary of the Q&A session from the public meeting held on June 21, 2021. Questions are marked by a 'Q,' comments are marked with a 'C' and answers and responses are noted with an 'A.'

C: Some of the principles are hard to implement, such as open source. Unless you have the relationship with the open source community, you will not get a response from them to a Request for Proposal (RFP).

Q: **What is the plan to work with the open source community before RFPs go out, so they actually bid on them?**

A: We have thought a lot about how to make this work. We will have to think about this further moving forward. This will be a gradual transition in terms of how these principles are embedded into procurements. We will have to do it on a procurement-by-procurement basis to see what works. We look forward to your suggestions in terms of things we need to consider on as we move forward.

Q: **Has the team connected with Innovate Cities open data project?**

A: We have met with them in the past and look forward to continuing working together. The City is not specifically working with Innovate Cities on their open data project right now.

Q: **How will non-citizen residents be able to participate?**

A: We encounter this in all policy making. The City of Toronto is a sanctuary city and are committed to providing services to everyone, and will take an inclusive lens when developing this policy and others as well.

Q: **Are the documents from previous DIP consultations form 2019 and 2020 available?**

A: Yes, a number of documents have been published and are on our website. We encourage you to look at the documents and email us any questions you might have.

C: The overall definition of digital infrastructure should have digital automation added to it. Right now the definition seems to be concentrated on communication. Communication is a more passive activity for computers, whereas a more active activity is automation which has great active implications. This will be important in the future as automation is increasingly considered.

The principle that includes benefits should also include avoidance of harm in its definition. There needs to be a process whereby technology can be rejected. There does not seem to be any evaluation of that in the principles. Both benefits and harms of technology should be included in any assessments. We need to worry about the technology being autonomous and people not having control in the future. This principle needs to be a part of the assessment process.

Q: Is there an inventory of available software applications or an algorithm register that can be published on the open data portal?

A: Something we are looking at doing in the Fall is an algorithmic registrer. You will have an opportunity to look at this when we come back with more information. The Plan will evolve as things change and as we receive input.

Q: How do digital access initiatives in terms of disadvantages and social policy fit into this planning?

A: The February 2021 ConnectTO report to Council on centering our work around connectivity was driven by the experience with regards to digital inequity during the COVID-19 pandemic. This aligns with the "Equity and Inclusion" and "A Well-Run City" principles of the Plan.

The ConnectTO program aims to leverage public assets to provide affordable high-speed internet to underserved communities. This program also embeds connectivity in the centre of all the work the City does including developing policy, creating new parks and building affordable housing.

Q: What is the City's first project that will be implemented and what is the cost?

A: We are looking at balancing the principles, including "A Well-Run City". This principle ensures that technology and digital infrastructure development provides value for our residents. At this point, the City is looking to identify what is in scope. We are having conversations with staff from other cities such as Montreal and Barcelona who are further along in implementing their digital infrastructure plans to learn more.

Q: What is the plan to prevent undue influence when drafting of a procurement?

A: No vendor or supplier is allowed to contribute to the drafting of a procurement. Procurement is something that is done internal to the City. With respect to the Swiss Challenge, PayIt there was an unsolicited proposal submitted to the City, that is the standard process. The value of the proposal was assessed to ensure that it aligned with the City's roadmap for technology. When the RFP was

developed, the proposal was used as a baseline for what the City was looking for and was then enhanced to cover aspects that the proposal missed. A fairness monitor drafted the final requirements.

The City always tries to ensure that there is fairness and no bias in the procurement process.

Q: **How will the plan deal with vendor-initiated proposals where the core functionality of the program being proposed is not something that the City has identified as an immediate need? How will that process be made accountable and transparent as the City moves towards autonomy of their technology choices?**

A: Today, the only avenue for someone to submit an unsolicited proposal is through the Office of the Partnership. That is taken under advisement and the City works with different Divisions to determine if it is something worth pursuing. Approval from Council must also be received before pursuing it.

There were lessons learned through the PayIt proposal. The City is going to continue to look at and refine this process for bigger procurements. The DIP principles will be applied across the board for technology procurement regardless if it is unsolicited or something that the City initiates. The City is also examining the process for open contracting.

This will be considered through the development of the DIP and how it is applied overall. The DIP principles will be able to be applied to these kinds of situations and others that have not come up.

C: It is important to fully understand the implications of Digital Autonomy on the City business Divisions that own and operate critical infrastructure assets.

Q: **What are the plans for determining the City's needs for digital infrastructure with general public consultation?**

A: The principle of "Transparency and Democracy" comes to mind, and there is a need to include residents in the process and there is a need for residents to understand how decisions are made. There are thresholds such as dollar value (i.e., triggering a report to a special Committee of Council) which results in a public discussion at that time. These thresholds are something we will be looking at as part of the DIP including what projects people want to have a say in. We encourage you to let us know how we can do better in the process.

Q: **To what degree is Digital Autonomy an emerging issue in other Canadian municipalities and does it conflict with national policies?**

A: We have had conversations with other Canadian municipalities on this. We are advocating for a coast-to-coast 'Big-Cities Table'. We have been having great conversations with the Provincial and Federal governments as well. The purpose of the table is to come to a common understanding of issues. The issues may not be addressed in the same way, but we are working on building a common narrative.

We are also advocating for a stronger municipal voice in the telecommunications realm as it relates to Digital Infrastructure. We are looking at how best to position municipalities to give more voice to residents and businesses.

We are learning from other cities nationally and internationally on how to avoid conflict with national policies.

Q: What kind of projects are being included?

A: The first step we are taking is identifying what is in scope. The policy pieces have to be in place before any projects begin. We want to hear from the public about what you think should be included.

C: It is hard to see how Digital Autonomy will be achieved if we do not understand it.

C: It will be important to determine the generally accepted standards to inform Digital Autonomy.

Appendix B: Online Questionnaire Responses

The following are the verbatim responses received from all questionnaire respondents. Responses are listed under the corresponding questions.

Proposed Definition of Digital Autonomy

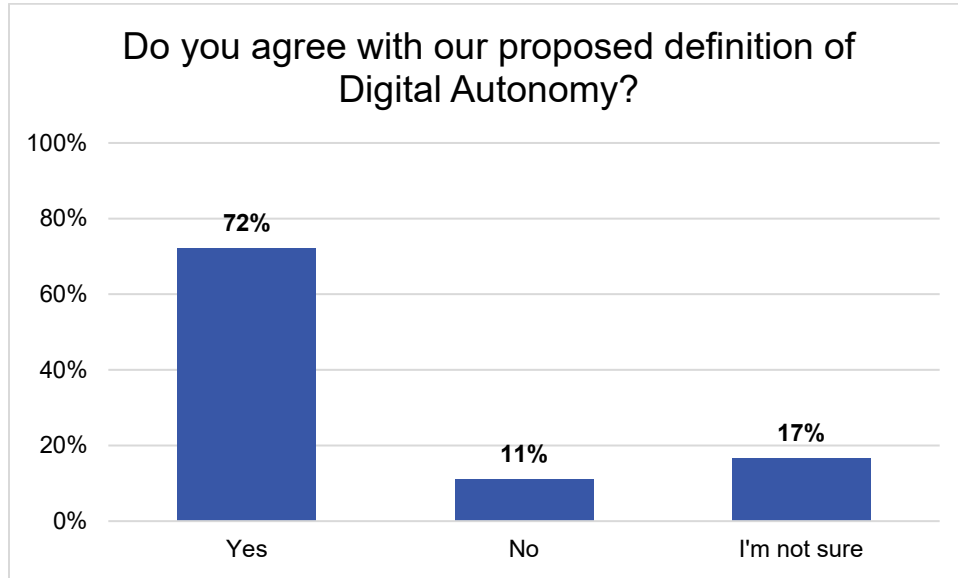Do you agree with our proposed definition of Digital Autonomy?

Figure 1: Graph showing participant responses to *Do you agree with our proposed definition of Digital Autonomy?* n=18

If you answered "No" or "I'm not sure," please explain why.

- It is too vague. Since the status quo is so far from where we would like to be, it's important to be more explicit about what 'develop, maintain and control' mean.

- The definition does not capture important aspects of autonomy – of the decision being free, informed, uncoerced (independent, self-determined, discretionary, etc.). This can perhaps be addressed by replacing 'ability' with 'freedom', adding adverbs like 'freely' or similar, or adding another sentence. The current definition mostly clarifies what 'digital' means.

- As a layperson Digital Autonomy is still vague for this layperson as it relates to me a user that you folks will supply so I have better access to the overwhelming information with all public bodies that taxpayers pay for.

Digital Autonomy Policy Objectives

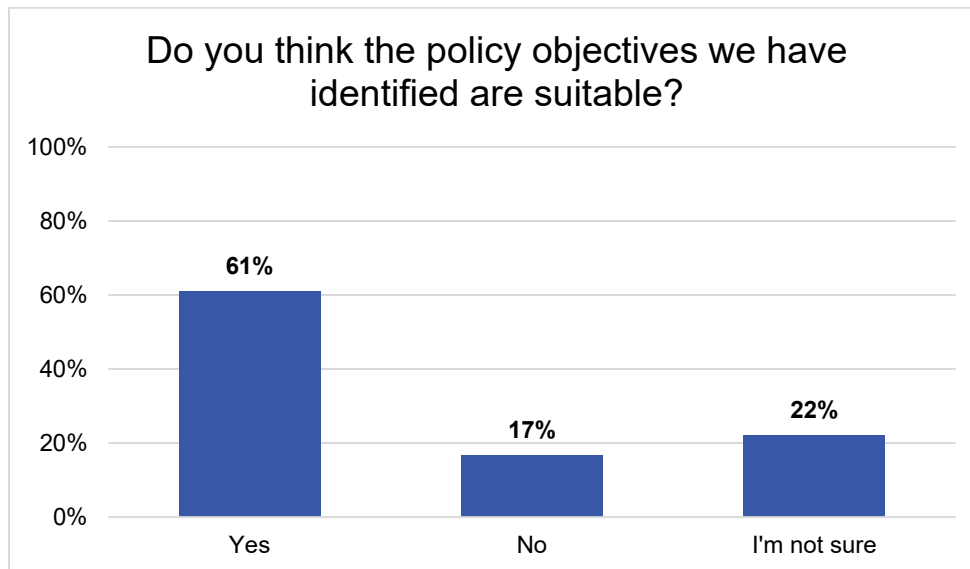Do you think the policy objectives we have identified are suitable?

Figure 2: Graph showing participant responses to *Do you think the policy objectives we have identified are suitable?* n=18

If you answered "No" or "I'm not sure," please explain why.

- The scope of Digital Autonomy is policy objectives related to the List. I don't see anything related to the layperson when I want to search on the web site toronto.ca for finding a meeting which is so complex it's not simple to find the meeting as no index to find the number if you know what I mean. User friendly for the taxpayer and layperson

- These do not address the range of concerns. Compare these to the principles in, for example, Montreal Digital Data Charter or London's Emerging Technology Charter -- those are more comprehensive and up-to-date.

- Beyond Data Residency, what about data ownership/licensing? Many municipalities accidentally end up in agreements in which they need to pay vendors to access/export data (even simple data like their ward boundaries!). Beyond the right to repair, what about the right to modify (for example, replacing the vendor's firmware on a sensor)? In the case of physical infrastructure, the City might decide to rent rather than own at first. Should the City retain the option to purchase (own) at a later date?

- Yes all the buzz words sound good as a layperson but the devil is in the details. When I use the current TO web site I appreciate that it is available but when I look for something it is difficult to find.

Open Source

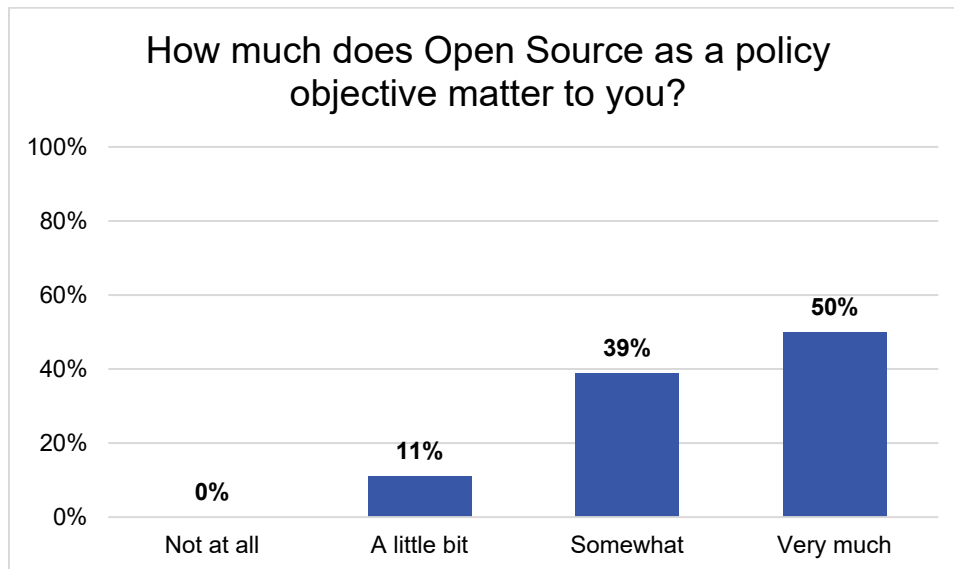How much does Open Source as a policy objective matter to you?

How much does Open Source as a policy objective matter to you?

- 100%
- 80%
- 60%
- 40%
- 20%
- 0%

Not at all: 0%
A little bit: 11%
Somewhat: 39%
Very much: 50%

Figure 3: Graph showing participant responses to *How much does Open Source as a policy objective matter to you?* n=18

What outcomes would you like to be delivered from the Open Source policy objective?

- Open source to me means its open to find what I am looking for like Council meetings what happened as I could not attend the meeting as I was working to pay my bills as it means open source to me is finding what is important to me as a taxpayer and a layperson as the system at the City and others is so complex to find anything the search system could be easier to use like Google as an example.

- The majority of the City's technology investments are in open source software, and the City is a major contributor of open source code.

- An exciting outcome would be for municipalities to pool efforts to fund or develop open-source software for their common use.

- That the City will not be force the full line of computers every time large corporations upgrade their operating system version.

- Improved accessibility of information to the public.

- Ok as a layperson what do I know about code or modifying it. All I want is to find what happen at a meeting at City Hall and that is a challenge even going to YouTube to listen to a meeting as it goes on forever and all I want is the item I am looking for. Just 1 example there is more but need a focus group to work through the system to show you folks.

What issues would you like to see addressed in an Open Source policy?

- Finding information from the City web site. There is a lot of activity going on at the City and it's a maze to find anything.

- Training.

- The many challenges that governments face when attempting to implement a policy like this.

- The City will reach a larger section of the population, and the entire community will be able to use their computers for a longer time avoiding so much waste of resources.

- The ability to eliminate policy that creates obstacles for digital and open source driven policies. in other words, policies that promote digital process and procedures amongst City staff.

- User friendly. Keep It super simple for the layperson.

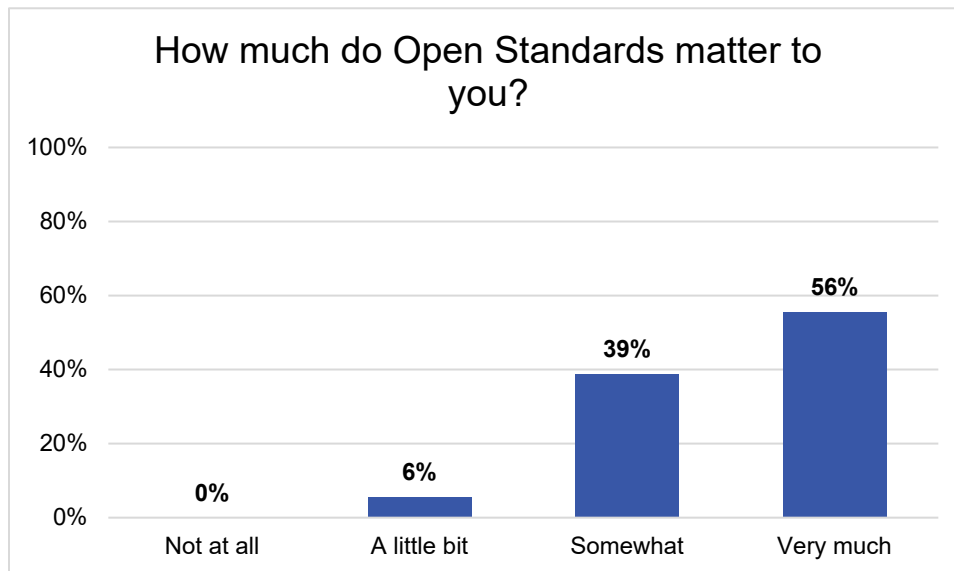## Open Standards

How much do Open Standards matter to you?

Figure 4: Graph showing participant responses to *How much do Open Standards matter to you?* n=18

What outcomes would you like to be delivered from the Open Standards policy objective?

- End result hopefully a layperson will understand and hope it's easier to find information from the maze at City Hall.

- The City is a contributor to emerging open standards, not merely a consumer of standards set by stodgy standards bodies.

- We all be using components and elements.

- So important. Hugely. Standardization is key examples. Banking uses ISO. So does NASA.

What issues would you like to see addressed in an Open Standards policy?

- Finding information from the taxpayer point of view and keep it super simple.

- Cyber security.

- The standards bodies mentioned in the policy are not the right ones to be looking at. Few of these have any bearing on Digital Autonomy. Instead, look at things like (for example) the Open Mobility Foundation, and initiatives around algorithmic transparency.

- While the City should adopt open standards where possible, there is not a standard for everything. In such cases, the City should still, as a practice, define and document the formats it uses, to ease interoperability. For example, data should be accompanied by a data dictionary, to define and specify the data elements.

- Correct over time the installations that in the past did not follow international standards. Those projects include elements that disappear more easily from the market, and which force us all to pay more for those estrange component.

- Transparency when it comes to Open Standards policy and how often it get audited hope yearly.

Open Contracting

How much does Open Contracting as a policy objective matter to you?
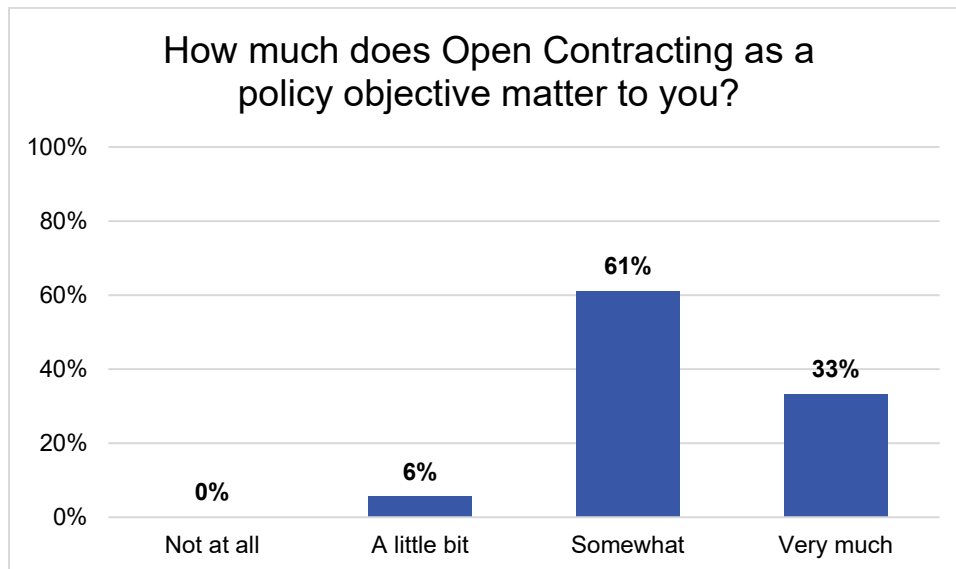
Figure 5: Graph showing participant responses to *How much does Open Contracting as a policy objective matter to you?* n=18

Do you agree with how we have approached Open Contracting?

- I am not a contractor who wants to do business with the City but if I was a layperson that wants to do business with the City then I hope it will be easy for me to follow as a layperson as in many cases it is frustrating dealing with government at all levels so if it makes it easier for the layperson then I am for it. User friendly.

- No it doesn't go nearly far enough.

- Open' in 'Open Contracting' also applies to the process of determining needs (e.g. clinician-driven sourcing at the provincial level) and of agreeing solutions (e.g. a co-design process or innovation partnership). A procurement policy is not open if procurement staff make every decision (typically based on financial and pricing data) without involving end-users in a value analysis. The current policy focuses too much on information.

- With a open process that can be followed by any interested company we will ensure that everything happening in the negotiation process is open to everyone, and that all can challenge, or complaint against something not following the City guiding principles.

- Yes, I do agree.

- As a layperson I do not know but hey if its open-transparent then that's a good focus.

- Sure, I guess. It says you are comparing existing processes to identify areas for improvement. Then what?

What outcomes would you like to be delivered from Open Contracting?

- User friendly operation who needs to work with your system

- Security from criminal infiltration of this contracting process.

- The City is actively cultivating a competitive and engaged digital infrastructure vendor community, which is committed to helping the City achieve well-being and prosperity for residents, not just trying to meet its contractual obligations.

- There is also an opportunity for procurement to promote equity, sustainability and inclusion. See, for example, the Open Contracting Partnership's and Aspen Institute's 'Procurement Path to Equity Report': https://www.open-contracting.org/wp-content/uploads/2020/11/OCP-AspenCUI-2020-Pathway-to-Equity.pdf

- With an open process that can be followed by any interested company we will ensure that everything happening in the negotiation process is open to everyone, and that all can challenge, or complaint against something not following the City guiding principles.

- Increased accountability to promote improved process.

- Transparency for the layperson to follow. KISS. Keep it super simple if you can.

- I would like the process of procurement to be more transparent to the public. During the presentation it said you can access RFP's by registering with the platform (cannot remember what it is called). This is a barrier to residents. Why can't they just be posted to the City's web page? That is an outcome I would like to see.

Data Residency

How much does Data Residency in Canada matter to you?
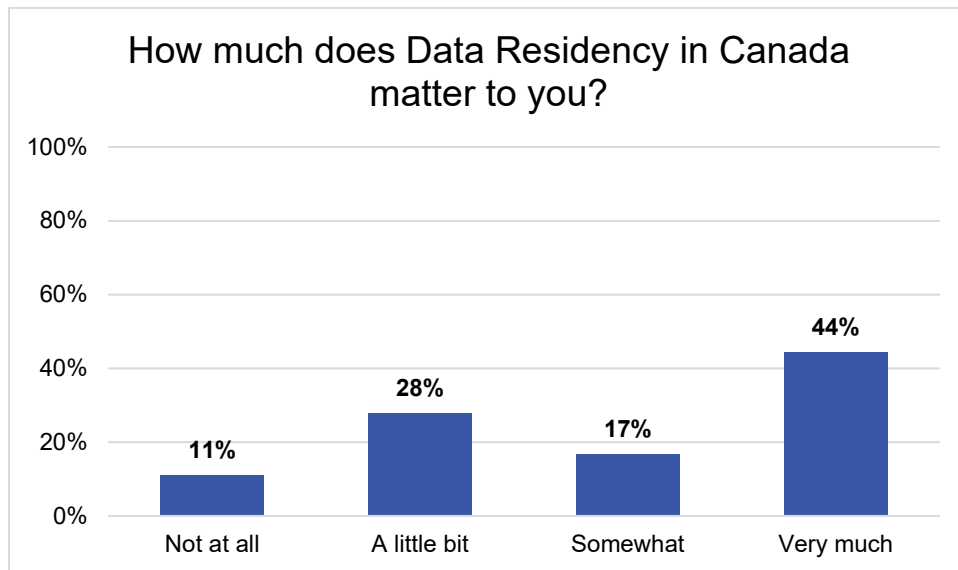

Figure 6: Graph showing participant responses to *How much does Data Residency in Canada matter to you?* n=18

What outcomes would you like to be delivered from the Data Residency in Canada policy objective?

- Data stays at the source where it was created. Guard it.

- No, sharing should not happen for residential purposes. Security from international hacking and or misuse is paramount as we already see this happening.

- Full disclosure for ALL residents.

- Data Residency policies contribute nothing to maintaining privacy or security, and they limit the City's ability to work with world-class technologies and services.

- Data integrity. Allowing data to go out of Canada is a risk for the security and confidentiality the information of all the people authorized to use the new DIP of the City of Toronto.

- Whatever information you have on me. I would like to know when it leaves your domain or residency.

- I would like my data to be secure. I do not understand why this policy is needed. Does it mean that my data right now is not secure?

What issues would you like to see addressed in a Data Residency Policy?

- Data stays with the source where it was created.

- Security Breach from hackers.

- Just drop it. It's a terrible idea.

- Data Residency is one strategy for data security, but it is not, in my opinion, necessary. If the protocols used for transferring data are secure, if the data at rest is encrypted, and if only the City has a copy of the encryption keys, then the data can reside anywhere. That said, Data Residency mitigates implementation error and accidental disclosure, so it is worthwhile on that account.

- That many individuals using the new Digital Infrastructure for the City of Toronto are also users of free services offered by huge multinational Internet or telecommunications companies.

- Privacy guarded with your life or the City life or whatever publics are responsible.

- I would like the policy to clearly explain why Data Residency is needed: what is wrong with the status quo?

Right to Repair

How much does Right to Repair matter to you as a policy objective?
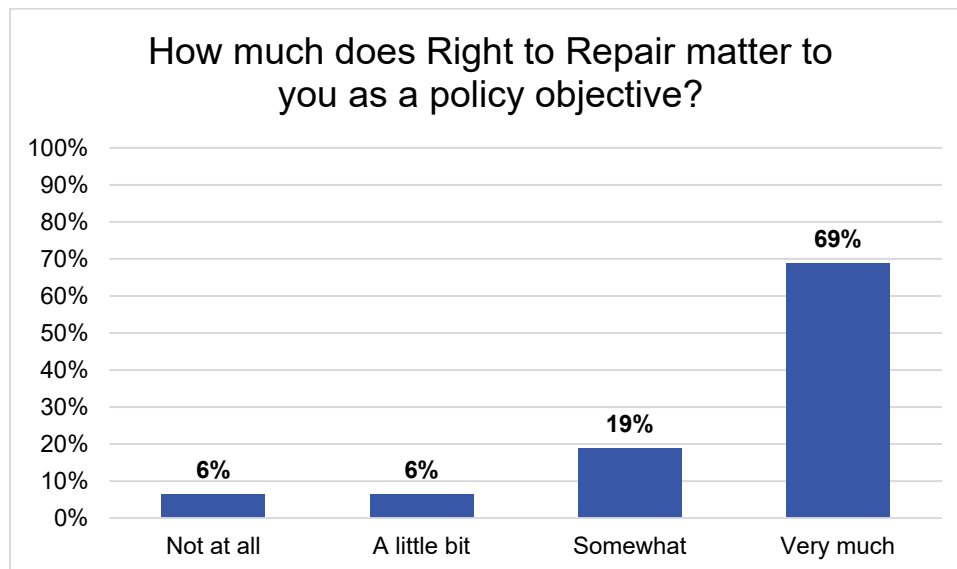

Figure 7: Graph showing participant responses to *How much does Right to Repair matter to you as a policy objective?* n=16

What outcomes would you like to be delivered through the Right to Repair policy objective?

- Right to repair where and when needed.

- This point also brings data security for the City and all the users of the new DI for the City of Toronto. Besides, once external technicians, or engineers, are trying

to fix an issue, they will be dealing with confidentiality, and the City will not be able to ensure data security.

- As long as you follow ISO standards.

- More recycling, less landfill, reduced environmental waste.

What issues would you like to see addressed in a Right to Repair Policy?

- If I understand this it is the right to repair if its broken.

- The implementation challenges. It is not a good idea to prepare the policy without planning ahead for how it'll actually be successful in practice.

- Besides having the right to repair, does the vendor also have an obligation to provide information to ease repair? Having a right to repair is not that useful if the City will have to reverse engineer the vendor's product without any manual, assistance, etc.

- Stop using short term technicians send by one of the big multinational vendors that only want to quickly appear as if the issue has been resolved, even if the City is forced to deal with it in a few days.

- Transparency and regular audits for the taxpayers or layperson to understand done yearly

Digital Autonomy as a Sixth Guiding Principle

Do you agree with our proposal to add Digital Autonomy as a sixth principle of the Digital Infrastructure Plan?
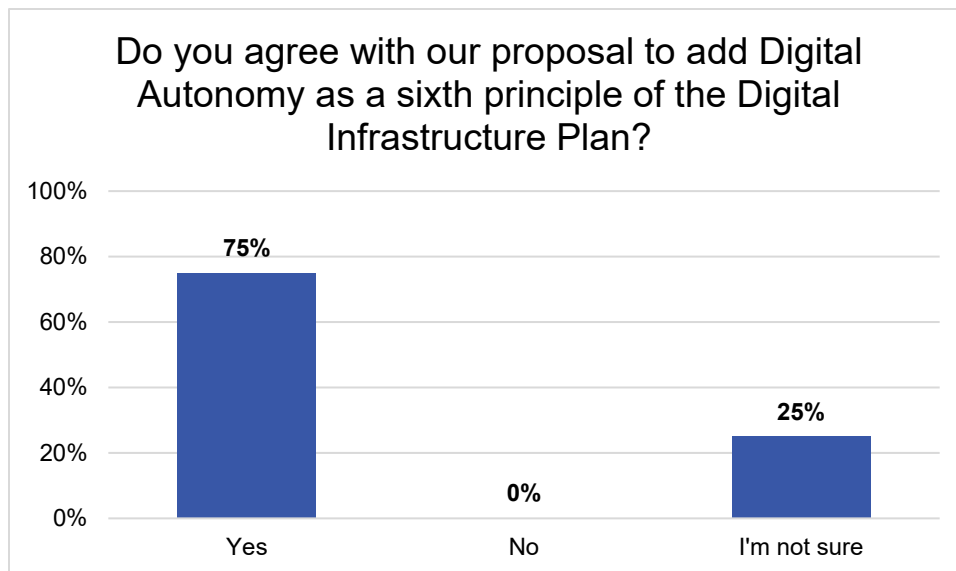

Figure 8: Graph showing participant responses to *Do you agree with our proposal to add Digital Autonomy as a sixth principle of the Digital Infrastructure Plan?* n=16

If you answered "No" or "I'm not sure," please explain why.

- This point can be either way. The good outcome depends on how actually the DIP of the City is managed.

Draft Vision Statement

Do you agree with our proposed vision statement for Digital Autonomy?
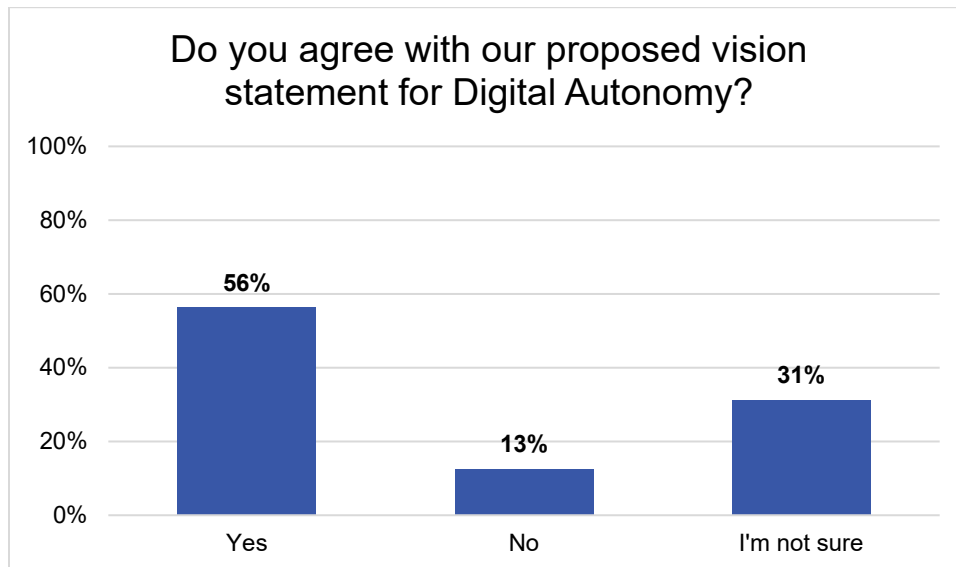

Figure 9: Graph showing participant responses to *Do you agree with our proposed vision statement for Digital Autonomy?* n=16

If you answered "No" or "I'm not sure," please explain why.

- It's too vague.
- As a layperson don't yet understand the depth and breadth of each maybe more needed instead of 6 or less I just don't know.

Would you propose any modifications to the vision statement for Digital Autonomy?

- Keep the province out but have strict protocols and safeguards for City staff and politicians.
- It needs to name the specific threats to Digital Autonomy, in order to make it clear, focused and comprehensible.
- I just want to add a comment that this was the missing piece to the definition of Digital Autonomy in the earlier question ('maintain control', 'act with autonomy', 'self-determined manner').
- Focus groups for the layperson to see if you folks can explain in layperson terms what it means or survey with the tax bills when sent out. Engage the taxpayers.

Digital Autonomy Implementation

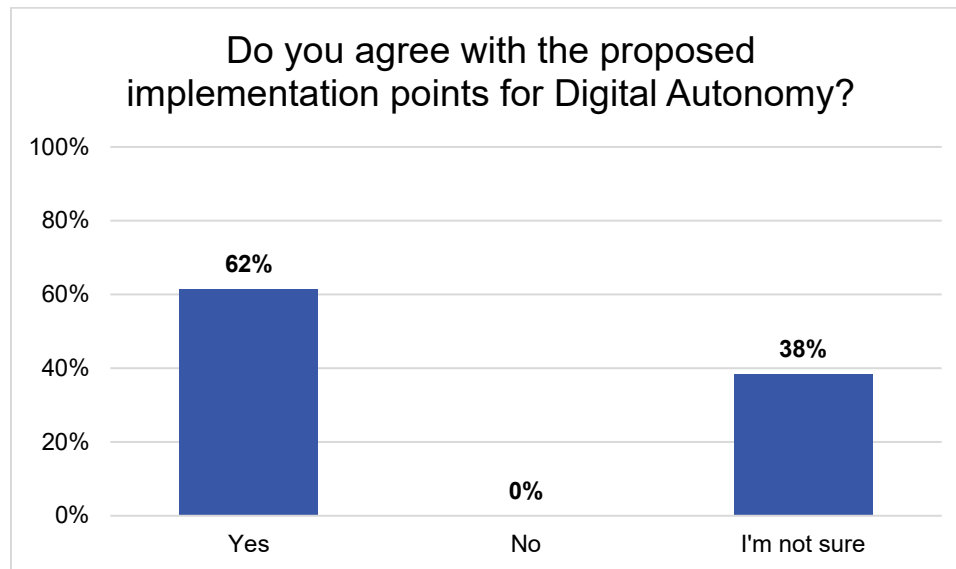Do you agree with the proposed implementation points for Digital Autonomy?

Figure 10: Graph showing participant responses to *Do you agree with the proposed implementation points for Digital Autonomy? n=13*

If you answered "No" or "I'm not sure," please explain why.

- It is fine to say that it takes time, but without a specified timeline for implementation, it is easy to picture this work getting sidelined.

- While I understand the need to take time to develop policies, manage change, etc., could there be an accountability mechanism / implementation tracker to ensure this does not end up as a perpetually postponed part of the plan?

- The devil is in the details would like more input on the engage community which includes the taxpayer. Engage with survey with tax bill.

Do you have any other comments, questions, or feedback to add?

- As a layperson and taxpayer I think the direction is great. Not sure what the 5 working principles are or 6 and how it will help this layperson with better access to lets say all the meeting that go on and trying to find info currently is a nightmare and each meeting has a number survey this can be convey into an index for layperson to find the reference number and type it in and find the information that occurred from the meeting. The devil is in the detail so I hope you can relate what I am referring to.

- Please share detailed results from this survey in a report and/or as an open data set.

- Thank you for the opportunity to provide feedback. I like the general direction, and look forward to future iterations.

- Toronto is controlled by a couple of telecommunications companies that do not want to share their infrastructure, including the old and obsolete elements they no longer want to use. Because that, development of the city has been contained, and it is time that the City promotes the use of a common Internet network infrastructure.

- An enhanced digital strategy will move the City away from manual intensive best practices and increased productivity through the transparency of Digital results.

- This is an important aspect of service to the taxpayer. It needs to be layperson or user friendly for the folks that will use the system. I have lots of experience going onto the web site that is frustrating for all policies that the press release send out. So many yet impossible to find details

- I think autonomy also extends to the realm of interoperability and data sovereignty (including - but not just - indigenous data sovereignty).

Appendix C: Emailed Feedback

The following appendix provides all emails submitted by participants to the dedicated project email address digitalfeedback@toronto.ca. All personal information has been redacted unless submitted by a formalized organization.

Email Submission #1

I refer to the captioned subject and attach a marked-up, annotated version of the Digital Infrastructure Plan for your consideration.

Your acknowledgement of receipt will be appreciated.

Thank you for the opportunity to review, and comment on, this important City initiative.

Sincerely,

[Name redacted for privacy purposes]

Extracted Annotated Comments

- The definition, as it stands, is incomplete, and contains material ambiguities that are highlighted in my comments. It requires re-work before it can truly be presented as defensible on a component-by-component basis. The presence of anomalies only serves to distract from the messages that the City wants to convey.

- Consideration should be given to defining differences between data and information.

- CRUD is a generally accepted convention used to express data transformation states - Create, Read, Update, Delete. Consideration should be given to reflecting these states in the definition in terms of completeness and consistency.

- Consideration should be given to the re-casting the clause to read "... structures (physical and cyberphysical (CPS))", given that, in the list of examples, sensors is presented as a CPS instance. The definition, as it stands, is incomplete.

- Consideration should be given to the use of NIST SP800-161 Rev. 1 to baseline the extent to which security-related considerations are reflected, and embedded, in each procurement method used by the City. Refer to NIST SP800-161, Rev. 1, Cyber Supply Chain Risk Management Practices for Systems and Organizations, April 2021 - https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-161r1-draft.pdf

- The intent behind, and the value proposition inherent in, the draft definition are unclear.

  One might reasonably argue that the City today addresses the objectives stated in the definition as a matter of good for the civil society that it services.

  If, on the other hand, the draft definition is presents forward-looking objectives for target operating environment (TOE) realization, how does it reflect net-new objectives not already part of the City's current technology infrastructure model? Is

the reference to "ability" in the draft definition meant to signify some form of future-state, unfettered, unilateral technology stewardship capability that it does not enjoy at present?

In summation, is the definition meant to convey the City's business-as-usual (BAU), or desired TOE, posture?

"... selection, use and design ..." - The draft definition is silent on the inclusion of digital infrastructure asset maintenance and retirement (end-of-life) as discrete phases. If the definition is to be inclusive of all applicable asset management phases, consideration should be given to explicitly recording all applicable lifecycle steps.

What is the precise Digital Autonomy provenance/scope of interest? Are Agencies and Corporations included? de-centralized IT instances? corporate IT only? A more verbose, precise, explanation of provenance is required to provide clarity regarding scope.

Given the significance, and materiality, of the foregoing points in total, consideration should be given to re-framing the definition. A well-articulated definition is foundational to clearly describing what Digital Autonomy means for the City, and removes ambiguity as a result.

- Digital autonomy is framed here as the City's ability to (a) disassociate itself from, and be unencumbered by, technology vendor dependencies, and (b) procure technologies based on "public interest" alone, which ostensibly addresses the more reasoned, objective, and overarching, civil good imperative. Thus, the fundamental rationale that underpins, and drives, infrastructure asset procurement in the Digital Autonomy realm is democratized (based on what is best for civil society), not commoditized (based on what is expedient from a vendor relationship perspective).

  This approach to explaining Digital Autonomy diffuses the tension between present-day vendor dependence, and the City's desire to reflect a broad-based public consultation/engagement process for technology acquisitions going forward.

  If these assumptions are correct, then they shed light on ambiguities with the draft definition noted in my comments on the slide 22.

  "Ability", then, in the draft definition, refers to the procurement of technology infrastructure assets based on constituency-, and citizen-based imperatives that service the common good. In that context, Digital Autonomy is the expression of those imperatives, and the elimination of the City's dependence on vendor relationships as the prime cause for technology acquisitions.

- To be transparent, the City should attribute the jurisdictions consulted as part of the environmental scan.

- To be transparent, the City should attribute the subject matter experts consulted and their respective affiliations.

- On what basis were the objectives cited determined to represent DA? What rationale was used to select these objectives over other candidate objectives?

  Re: Security and DA Objectives

  Consideration should be given to the design, and development, of a standards compendium that aggregates applicable security industry standards on a DA objective-by-DA objective basis, i.e., development, and maintenance, (refresh, addition, deletion) of the base essential standing security standards applicable to, and that govern, Open Source, Open Standards, Open Contracting, etc. in turn.

  In the absence of this effort, the City will be without the authoritative means to defend, rationalize, or attribute, its security posture, decisions and actions, against any, or all, of the DA objectives.

- The security implications for Open Source, as described, are material regardless of public or City government perspective.

  Practices in the Open Source dimension of Digital Autonomy must be governed by security industry standards that address, at a minimum, open source software (OSS) use/source code pedigree/origination in a government context, and secure systems engineering, and secure code supply chain management/manufacture/Software Bill of Materials (SBOM), generally.

- The City must develop (a) an exception handling process to address non-compliance to standards, (b) non-compliance use cases that document allowable deviations from standards' requirements/specifications, (c) dispensation requirements that must be satisfied in order to take leave of compliance to standards, (d) articulation of compensating controls, and countermeasures, to be implemented in approved non-compliance scenarios, and (e) period-of-time limitations during which the exemption to standards will be granted and remain in force.

- The City must develop a base set of generally accepted cloud security standards to be used to vet cloud service provider (CSP) conformance.

- Consideration should be given to understanding the feasibility of realizing this objective.

  As it stands, the objective asserts the City's autonomy over repairs to its digital infrastructure (DI). This level of autonomy assumes deep expertise, and familiarity, with technology components that fail, or are misconfigured, to the extent that the City would not require vendor interventions to remediate system faults. The assumption may not be achievable given the complexity of the City's digital infrastructure, and that its infrastructure footprint is comprised of numerous vendors and multiple, heterogeneous DI technology products.

  In order to realize this level of autonomy, the City would require staff to possess deep systems engineering capabilities, and be as familiar with all of its digital

infrastructure components as would vendor technicians to the extent that staff are actually able to trouble-shoot problems, and remediate them, congruent with applicable OLAs and SLAs.

The working assumption that an in-house repair capabilities model is more cost-effective, and efficient, than a vendor-dependent repair model requires justification through a comparative cost analysis, i.e., the relative costs associated with the maintenance of in-house repair expertise (for e.g., in-house SME DI technology training, DI technology certification for as many SMEs as there are digital infrastructure technologies) vs. vendor maintenance as a matter of course through standing contractual arrangements.

- The citation of SaaS as an example of software that the City can maintain and repair is misleading as it stands. SaaS reflects vendor-side implementations of enterprise applications (for e.g., ERP), and the vendors - not the City - that are responsible for their maintenance and repair. The bullet, as it stands, conflates these two actors - City and vendors - and incorrectly attributes the maintenance and repair of digital infrastructure, such as SaaS, to the City proper.

  The "right to repair policy" is meant to convey the extent to which the City maintains sovereignty over the maintenance and repair of its digital infrastructure not only through its own actions, but also through third parties, such as vendors, bound to do so contractually. The issue at-hand is that the statement, as written, suggests that the City itself will directly maintain, and repair, software over which it has no control.

  The statement should be re-written to convey the idea that the City will maintain, and repair, any, and all, digital infrastructure assets that it uses either directly, through its own interventions, or indirectly, through vendor undertakings.

- This version of the draft vision statement does not align with the version on slide 22. Which of the two versions is the authoritative draft vision statement?

- The underlying implication in the use of "autonomy" and "self-determined manner" is that the two terms are mutually exclusive one from the other, and convey different meanings; otherwise, there would be no need to express the same idea using terms that are synonymous in meaning.

  As such, the difference between "autonomy" and "self-determined manner" should be defined.

- A definition for "digital realm" is required.

- Is there an expectation that Digital Autonomy principles will apply retroactively to the City's legacy assets found in the production environment?

Email Submission #2

Dear team,

As I consider very important that the City manage the Internet access as an essential public utility, I also consider the project you are working an important effort towards reaching the goal of better Internet access for all members of society.

Attached is a presentation that introduces the topic to people unfamiliar with the needs of the project and the reasons to do it as I see it; and with actual desire to expand it to include actual network infrastructure design for the city as the project progresses.

I send it today to meet the deadline of July 6.

Best regards for the entire team,

[Name redacted for privacy purposes]

Presentation Text

Slide 1

Digital Infrastructure Plan Contribution

A presentation on 2021-July-05 by

[Name redacted for privacy purposes]

for the Digital Infrastructure Plan of the City of Toronto.

These meetings have been organized by the City of Toronto to allow the local businesses and the community to participate in this project.

Slide 2

Key Elements of DIP Project

- The DIP project was started by the City of Toronto, to define technological improvements for the future data network evolution of the city.

- Until now, six guiding principles have been defined to ensure that participants are able to easily verify whether the long-term objectives of the City will be met, and to help.

- These principles include: Equity & Inclusion, A Well Run City, Social Environmental and Economic Benefits, Privacy and Security, Democracy and Transparency, and Digital Autonomy.

Slide 3

Development Evolution

- Internet connectivity needs changed quickly from dial-up, to DSL, to ADSL, to FTN, to WiFi
- A large segment of the population is connecting to the Internet through portable electronic devices.
- Most modern computing systems expect to interact with its users through wireless devices, or at the very least through a fix computer terminal.
- Institutions are transitioning many processes, forcing users to pass from paper to wireless portals through their cellphones.

- Not all the population is ready or interested in change.

Slide 4

Different Commercial Priorities

- More processes will continue to transition into the Internet as companies and governments continue to adopt it.
- This will also force more people into the Internet, as in the future some services will only be available through it.
- Unfortunately, Internet Service Providers (ISPs) continue to disappear from the market forcing all users to limited alternatives.
- The Internet service offerings of very large telecommunication companies tends to be limited and expensive; just marketing.
- Their objective as commercial enterprises is to capture a larger portion of the market, and to get more profits than the rest.
- In the process of dominating the market, larger companies continue absorbing smaller ones in order to reduce the effort to control it.
- Clients are not the most important priority of larger companies; and this is very real for the ISP divisions of large telecommunications companies.

Slide 5

What is the Problem?

- These large telecommunication companies aim at becoming monopolies able to set their desires in the market.
- People, or smaller companies, are not allowed to use existing infrastructure from these monopolies, even if it is old.
- That makes it really hard for smaller companies to enter the market to offer more affordable Internet service alternatives. They are forced to rebuild instead of being able to wholesale lease existing network.
- That results in redundant infrastructure and competition in aspects that bring low development to the city.
- At the end, these large companies like people to stop using their older infrastructure, so that people are forced to sign-up to a new type of access and end up paying much more for the new service.

Slide 6

Why the Government?

- With recent global events like the COVID-19 pandemic, the need for people to have good Internet access became evident.
- Governments tried to control the virus by forcing people to attend virtually many activities like school, work, appointments, etc.

- So the Internet becomes the only alternative for people to overcome in part, the huge limitations imposed by governments to solve global events like this pandemic.

- And being governments the entities forcing the rest of society out of real activities, then they also need to ensure that these alternatives for people exists.

- That is way the Internet service must become an essential public utility available to every resident.

- Being the objectives of the government different to the ones of commercial enterprises, it is most likely for the government to provide good Internet service.

Slide 7

What other Cities Offer?

- Over the years few cities around the world have offered some form of public Internet access.

- There is usually big opposition from large telecommunication companies which own most of existing network infrastructure.

- Countries like Sweden, France, Japan, and the USA have some cities that have a public network open to the residents.

- Stockholm, founded in 1994 a municipally owned, operator-neutral, network that now has over 2 million kilometer of passive optical fiber.

- These City-owned networks usually provide open access to any ISP interested in offering services to the end users of that network.

Slide 8

What should Toronto Aim?

- To provide reliable Internet access, either free or at a good cost, to all residents interested in having it.

- To have a network infrastructure that is open to all companies interested in offering web services.

- To be a secure network that is safe for the data of its users, or the data transiting within.

- To be a stable network on the daily operations, but with the ability to easily evolve over time.

- To be environmentally sustainable by using all the infrastructure for the longest possible time, and by using the elements most appropriate for the planet.

Slide 9

Why Toronto?

- Nothing is free in life, someone has to pay for the cost of everything.

- In a case like the City of Toronto offering free Internet access, some taxpayers will eventually have to pay for it.

- So, is it worth for taxpayers to pay for this additional service that some might not even use?

- Yes; this is because the government can concentrate in providing a service that meets the objectives of the City; whereas private companies are only concentrating in getting more profits.

- As the City and the rest of society moves towards more automated services, the City also needs to find ways to minimize segregation of the residents who can not afford to pay for Internet access every month to access those services.

- Then, free, or low cost, access to Internet will help all residents to have the same opportunities to study, work, interact, receive medical assistance, etc.

Slide10

The Alternative

- There is always the debate whether it is better to let the industry compete to provide the best solution, or let the government do it.

- But as it has been proven in countless services, a well run public utilities company can provide better solutions to people than the private sector that is only concentrated in the short term.

- Thus, we can close our eyes and allow a large monopoly to continue dominating the local Internet market while setting the telecommunications regulations as desired. That will not help Canada to advance and will keep all competing for the first place in delivering the same that was delivered decades before.

- Or we let all people and companies use existing infrastructure controlled by the monopoly, issue regulations that prevent blocking the use of infrastructure (even if it is old), and let smaller ISPs offer with all the infrastructure what the monopoly does not want to do at any price.

Slide 11

What to Do?

- The government can establish regulations that prevent the monopolization of its network infrastructure.

- The City can acquire a broadband network to cover all the metropolitan area, and to interconnect the City network with other City networks around the world.

- All the servers, all the data, all the elements, and all the operations to manage this new City network must reside, or happen within Canada.

- This network infrastructure can also be leased from current ISPs, once regulations are modified to ensure reliability, data security, and flexibility in future operations.

- It ideally integrates well with existing network infrastructure that is installed in the city, and that is no longer valued by the monopoly company that owns it. Many smaller ISPs have been waiting to use it.

Slide 12

Links

- DIP Digital Infrastructure Plan https://www.toronto.ca/city-government/accountability operations-customerservice/long-term-vision-plans-and-strategies/smart-cityto/digitalinfrastructure-plan/

- ConnectTO: Internet Connectivity https://www.toronto.ca/city-government/accountability-operationscustomer-service/long-term-vision-plans-and-strategies/smart-cityto/internet-connectivity-connectto/

- Connected Community/Smart City Project Team Email: digitalfeedback@toronto.ca

- [Name redacted for privacy purposes] Email: [Redacted for privacy purposes]

WARNING

Not the City of Toronto, nor any of its employees has any responsibility for this document. The

information provided in this document was written by [Name redacted for privacy purposes] as a contribution to the ConnectTO project and the Smart City Team of the City of Toronto; and he is solely responsible for the opinions presented herein. Whenever the City, any of its teams, or any of its projects is referred to within, is as support to the contents of this document; either to introduce a topic or to provide historical support.

Email Submission #3

In the session, June 21, 2021 - DiscoTech: Discover Technology, the Digital Infrastructure Plan, and Digital Autonomy [for Toronto], I asked two questions:

1. I am aware of parallel community networking initiatives in Toronto that address digital access in terms of disadvantage and social policy but I don't yet see how those initiatives fit into this planning?
2. To what degree is Digital Autonomy an emerging issue in other Canadian municipalities, and does it come into conflict with national policy to view telecommunications and connectivity as market based?

I was asking these questions more in the framework of the implications for the individual citizen, rather than the City. Further reflecting on how my questions fit your plans, and on how much information technologies are changing daily life, I think your vision could and should be broader. Noticing that the fit of digital access issues to your initiatives isn't obvious, allows me to see that a citizen perspective is absent from the vision and

definition of Digital Autonomy. Every citizen also has a need to "act with autonomy and in a self-determined manner within the digital realm." If the City is to control the evolution of its digital infrastructure in the "public interest," shouldn't the vision and definition take the citizen's need for autonomy and control in the digital realm into account? For example (and far too rapidly off the top of my head!):

Vision: Digital Autonomy is an approach that would provide the city with greater control over its emerging digital infrastructure. The City will maintain control in the selection, use and design of its digital infrastructure, so that it can act with autonomy and in a self-determined manner within the digital realm.

A revised public interest vision:

Digital Autonomy is an approach that would provide the City with greater control over its emerging digital infrastructure and how that infrastructure supports its citizens in facing the transitions of living in a digital realm. The City will maintain control in the selection, use and design of its digital infrastructure, so that it and its citizens can act with autonomy and in a self-determined manner within the digital realm.

Definition: Digital Autonomy is the City's ability to develop, maintain and control the selection, use and design of its digital infrastructure to deliver public services and advance the public interest, as informed by legislation, and community consultation.

A revised definition:

Digital Autonomy is the City's ability to develop, maintain and control the selection, use and design of its digital infrastructure to deliver public services and advance the public interest, as informed by legislation, community consultation, and the needs of its citizens to adapt to living in the digital realm.

I'm concluding by noting I find the efforts of Toronto to gain greater control over its emerging digital infrastructure to be important, essential, and incredibly imaginative. I hope you succeed before the naysayers notice just how radial a move that is!

[Name redacted for privacy purposes]

[Address redacted for privacy purposes]

[Phone number redacted for privacy purposes]

Email Submission #4

Hi Team Data:

Sorry I missed your sessions. I was on break or swamped.

My idea to contribute would be to add a "report error" button on each collection of data points and page.

Overall the data quality is pretty good on the City assets but there are significant problems.

Personally I have been directly or indirectly negatively impacted a few times by substandard digital record keeping at the City. Twice with fairly disastrous effects. (Ombudspeople are chronically overwhelmed + takes significant time, digging, information requests and patience that is outside the acceptable level for 'normal' citizen to have to correct. Also silly to have to go through a process like an ombudsperson just because someone made a mistake.)

Happy to share info privately. Have made some mock-ups too if interested in how this might work in an efficient way.

An even better idea could be expanding the citizen reporting button to include "Report Accessibility and Data Errors."

This would really help move the quality of services, sites and information quality forward.

Cheers,

[Name redacted for privacy purposes]

Appendix D: Community Advisory Group (CAG) Meeting Summary

The following is a copy of the summary of the third CAG meeting held on June 7, 2021.

Digital Technologies & Your City

Community Advisory Group Meeting #3

June 7, 2021

4:00pm – 6:00pm

Meeting Overview

The third Community Advisory Group (CAG) meeting was held on June 7, 2021 from 4:00pm to 6:00pm via Webex. The agenda can be found in **Appendix A**. 14 of 23 members were in attendance.

The meeting was called to order by James Knott, LURA Consulting. Hamish Goodwin, Management Consultant, City of Toronto welcomed everyone and thanked them for attending. Hamish also gave a land acknowledgement. James then provided a meeting overview.

James Knott continued the meeting by asking CAG members for approval of the minutes from the previous meeting. CAG members were given the opportunity to comment on or revise the Meeting 1 summary. No comments were received on the meeting summary.

Presentation: Digital Infrastructure Plan Principle #6 – Digital Autonomy

Hamish Goodwin delivered a presentation in two parts. The first part provided an update on the Digital Infrastructure Plan (DIP) for the CAG, including a review of the scope and use of the Plan, City Council direction on the Plan, the Plan's five working principles, the proposed layout of the Plan, and the addition of a sixth principle, Digital Autonomy. In the second part, Hamish provided details on Digital Autonomy including a draft definition and vision statement, and the six elements of Digital Autonomy. The six elements are:

- Open Source
- Open Standards
- Open Contracting
- Data Residency in Canada
- Right to Repair Technology
- Indigenous Data Governance

- o Hamish noted that there will be a separate process on this element and that the CAG will not be asked to provide comment on this element in this meeting.

Hamish also provided an overview of the consultation process on Digital Autonomy.

Following the presentation, James Knott facilitated a Q&A/commenting session. Hamish Goodwin, Alice Xu, and Michael Blair, answered the following questions:

Questions are marked by a, 'Q' answers are marked with an, 'A.' and comments are marked with a 'C'.

C: I hope that if the City if considering an amendment to the Digital Infrastructure Plan this also means that there is space to address previous concerns regarding how to address benefits and avoidance of harm resulting from digital automation.

Q: Has the City initiated a mapping exercise of its legacy technology to understand what technology would be incompatible/not in adherence with the Digital Infrastructure Plan (including the proposed principle on Digital Autonomy)?

C: As part of the work the City is conducting on the DIP, there will be an accounting of how the principles and elements included in Digital Autonomy relate to the City's existing digital infrastructure.

C: The public needs context of the state of Toronto's existing digital infrastructure and how the DIP would impact them. Understanding the status quo through the documentation of assets (including defining what is considered "digital infrastructure") is important for the public to understand what is being discussed to set expectations given that there may be legacy projects that result in exceptions to the Plan. The public should be aware of these potential limitations going into consultations.

Q: Regarding the Digital Autonomy element 'Open Standards', where it reads "at a minimum", are there maximum or intermediate open standards?

C: "At a minimum" is used to denote that infrastructure would be required to meet the standard at the minimum. The City is open to suggestions on what a maximum might be.

Q: What efforts is the City undertaking to communicate the notice about the upcoming engagement?

C: The City will be using a combination of contacts in the digital infrastructure space to spread the word, updates to the City's website, email notice, and social media posts to raise awareness. Along with corporate communications, the team is

working to develop a catchy tag line for the consultations. The City is open to suggestions on the engagement approach.

C: The City should consider targeted engagement to age groups and communities that don't typically participate in this subject.

Q: **During the public meeting, what will the process be for providing comments? Will there be an opportunity for individual questions? Will there be a digital tool to provide feedback?**

C: The meeting on June 21, 2021 will be a more traditional public meeting including a presentation followed by questions and answers, and opportunities for discussion. The current direction is focused on providing information and answering questions through the meeting followed by an online questionnaire to provide detailed feedback. The City is also considering pre-recording content and uploading it to the project website for participants to refer back to.

Q: **How much of the DIP discussions is aspirational versus required? Acknowledging that some digital infrastructure can't be open sourced, is there flexibility to adapt?**

C: The City's directive from City Council was to look at "core" digital infrastructure, in the context of digital autonomy. In exploring this, we / staff moved away from trying to discern which digital infrastructure is core or not core, and have instead developed a position that the City would benefit from digital autonomy applying to all digital infrastructure. The City is still determining how this concept would be implemented and is considering only applying the Plan to *new* digital infrastructure initiatives. The City is aware that in some cases it may be impossible or too expensive to go to open source but is exploring how the principles of the DIP would be integrated over various time horizons. An implementation strategy will ultimately accompany the DIP.

Q: **Is data residency in Canada an existing City policy?**

C: Not in every instance – data residency depends on the kind of project and procedures that are followed. For instance, data residency is required to manage personal health information in accordance with the Personal Health Information Protection Act, 2004 (PHIPA). The City's Chief Information Security Office is developing policy related to sensitivity and security that will provide guidance on when to pursue data residency.

Q: **Are there any other cities Toronto could look to for case studies related to data residency?**

C: The team is aware of British Colombia, Alberta, and Montreal developing policy in the area of data residency.

Q: Is it clear which procurements are Digital Infrastructure procurements?

C: Not specific to procurement on infrastructure. The project team is looking at procurement broadly.

Breakout Discussions

James Knott introduced the breakout discussions sessions and directed CAG members on how to participate in their breakout session. CAG members were asked to provide feedback on the public consultation approach proposed by the City and the Digital Autonomy elements.

CAG members were separated into three groups. Every group discussed the public consultation approach, and each was assigned two of Digital Autonomy elements.

Following the breakout sessions, the facilitator from each breakout group provided a summary of what was discussed to the entire CAG.

CAG members were invited to submit additional feedback on the public consultation approach and the Digital Autonomy elements by email or telephone to Hamish Goodwin following the meeting.

Public Consultation Approach

Feedback from the breakout discussions is included as follows and is organized by feedback related to the content being presented to the public, and the process in which the City engages with the public.

Content

- Members emphasized the importance of articulating the outcomes of Digital Autonomy and how each of the elements could play out if adopted. Members advocated that the discussion should be framed around how this would affect the public and people's experience engaging with digital services.
  - Some suggested creating theoretical scenarios that could help to demonstrate or provide an example of how elements of Digital Autonomy would be applied to decision-making in the future. Alternatively, articulating the challenges posed by a lack of Digital Autonomy (absence of one ore more of these elements) could impact the way the City delivers services.
- Members discussed revisiting language and to connect terms to peoples' experience.
  - Plan versus Framework
  - Infrastructure versus Digital Life

- Digital Life Framework? One member disliked this title (digital life implies this is a given rather than a choice), aspiring for a more neutral title.
  - "Digital Infrastructure" should be clarified as the wording could imply this is internal only. Explain the term in a way people can relate to their day-to-day lives.
- Some members identified that the focus should be on the idea of the elements and less on the wording presented on the slides. Members suggested that the focus should be on whether the elements of Digital Autonomy are the right ones or if there are elements that are missing.
- Members suggested bringing in case studies or examples of how the elements of Digital Autonomy have been applied or implemented elsewhere.
- Members suggested presenting the feedback of experts to the public so that the public can evaluate it.
- Members noted that there should be a discussion of digital and data security.
- Some members indicated that the five DIP principles should be recapped for individuals who may not know about them. The team should explain if and how these five principles inform the new sixth principle of Digital Autonomy.
- Members discussed giving the public at minimum a high-level understanding of the state of the city's digital infrastructure assets and how the DIP (and specifically Digital Autonomy) influences these assets.
- Members suggested providing opportunities for the public to respond to the definitions of the elements of Digital Autonomy – is this what you expected the definition to be? How does your interpretation differ from what is presented?
- Members suggested that the City articulate their proposed implementation strategy, at a high level, to help demonstrate the process of getting from where we are today to a future point.
- A member suggested that during the public meeting it would be helpful to have a moment to reflect on each of the Digital Autonomy elements rather than speaking to all of them then asking for questions and comments.

Engagement Process

- Members were supportive of the pre-recorded presentation to help set context on what the digital infrastructure plan principles are and why a sixth is being discussed.
- Members indicated the consultation should be explicit in what people can influence and is up for discussion (and what is not).
  - For example, how much of the City's digital infrastructure can reasonably be changed, brought into conformity, or is already in conformity.
- Members suggested that they could help support the consultation process through their own Do-It-Yourself (DIY) engagement events that they would report back to the City on.

- Members supported the idea of marketing consultations through a catchy phrase such as Disco Tech (Discover Technology).
- Members offered a mixed response to the idea of info sheets – some were concerned people would not read it, others were concerned a high-level document would not provide the depth needed to discuss the topic.

Digital Autonomy Elements

Feedback from the breakout discussions is included as follows and is organized by Digital Autonomy element.

Open Source

- Members were curious about the extent to which open source is already in use at the City and wished to clarify if the City already shares code. Members wondered if this element was a deviation from what currently exists or if this element is merely formalizing an existing process.
- Members suggested that an environmental scan of how other municipalities have approached open source.
- One member suggested that open source should clarify who and how code sharing would take place. The member suggested that it seems like the intention is for there to be software/code sharing with other governments and that the general public may not have a personal use for this code.

Open Standards

No comments received on this topic.

Open Contracting

- Members were curious as to whether the City would go to open contracting/tender for everything.
- Members noted that being walked through the procurement process was enlightening and helpful.
- Members raised that there needs to be verification and enforcement of the open contracting process, as well as explanations when there are exceptions.
- Members identified that this needs to account for how rights and legal are factored into each individual contract and how these processes are negotiated.
- Members identified the importance of removing barriers to entry and access for companies seeking to participate.
- Members articulated their belief that contracting should be transparent in access and ability.
- Members reiterated the importance of relating this to what it means to residents of Toronto.

Data Residency in Canada

- Members were interested in how data residency is impacted by trade agreements and other requirements set by higher orders of government.

Right to Repair Technology

- A member noted that this element carries with it the ongoing issue that there are currently few opportunities for people to repair technology.

Wrap Up and Next Steps

Following the discussion period, Hamish provided an overview of next steps for the project. CAG Members were thanked for their comments. Hamish noted that he and the other City project team members will be accepting additional feedback on the public consultation process and Digital Autonomy elements. The meeting adjourned shortly after 6:00 pm.

City of Toronto Digital Infrastructure Plan

Community Advisory Group (CAG) Meeting 3

June 7, 2021

4:00 pm – 6:00 pm

AGENDA

4:00 pm	Welcome, Introductions, and Agenda Review
4:10 pm	Recap of Meeting 2
4:15 pm	Presentation
4:45 pm -	Questions of Clarification
5:00 pm -	Breakout Groups
5:45 pm -	Report Back
5:55 pm -	Wrap-up and Next Steps
6:00 pm -	Adjourn