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Building Human Rights into Intelligent-Community Design: Beyond Procurement

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Introduction

Cities have emerged as test beds for digital innovation. Data-collecting devices, such as sensors and cameras, have enabled fine-grained monitoring of public services including urban transit, energy distribution, and waste management, yielding tremendous potential for improvements in efficiency and sustainability. At the same, there is a rising public awareness that without clear guidelines or sufficient safeguards, data collection and use in both public and private spaces can lead to negative impacts on a broad spectrum of human rights and freedoms. In order to productively move forward with intelligent-community projects and design them to meet their full potential in serving the public interest, a consideration of rights and risks is essential.

One of the most common rights considered as a part of intelligent-community projects is the right to privacy. Indeed, in the digital age, the right to privacy has come to be described as a “guarantor” or a “precondition” for the enjoyment of other human rights and freedoms. The complexity of data flows, however, can make it challenging for individuals to discern—much less self-manage—the range of risks and rights they engage when consenting to the use of their personal data. Inadequate privacy protection can lead to a chilling effect on the exercise of other rights, such as freedom of expression or assembly in public spaces. As cities engage in public-private partnerships that seek to leverage data collection and advanced analytics such as artificial intelligence (AI) to improve or augment public services, greater reliance on digital systems will require new processes for identifying and mitigating the risks they generate to human rights and freedoms.

Many municipalities intend digital services to improve equity and access in their communities and design services carefully to ensure inclusion. However, many digital systems also have the potential to reify and reinforce social stratification. Biased datasets and/or biased models can lead to the unequal distribution of access to new public goods and services, resulting in adverse impacts on the right to equality and non-discrimination.¹ Increases in data collection, surveillance, and monitoring technologies, moreover, have the potential to disproportionately impact communities that are already at risk of being over-policed or over-surveilled. Too often, the negative human rights impacts of digital systems disproportionately affect the rights of more vulnerable people, including persons with disabilities, low-income households, workers, the elderly, and Black, Indigenous, People of Colour (BIPOC) communities.²

In general, proposals for “intelligent communities,” “smart cities,” “innovation districts,” or individual technologies like smart parking sensors are received through procurement processes created for traditional real estate development projects or established and well-known technologies. While some municipalities attempt to manage risk through procurement (for example, by establishing data governance processes in a request-for-proposals (RFP)), these mechanisms are often ill-equipped to consider the impact of an emerging technology with novel risks, nor do they typically name or thoroughly address human rights. Furthermore, as digital layers of an intelligent community are built and begin to interact, the piecemeal approach offered by procurement may be insufficient to address emergent human rights risks. As cities increasingly look to technology to help address pressing public objectives, they simultaneously require a broader range of legal, governance, and technical innovations that might enable them to take advantage of the social and economic benefits of digital technologies while minimizing their potential risks.

Accordingly, this paper begins by examining the types of digital technologies being procured for intelligent-community projects, alongside the potential human rights risks of these technologies. It then considers attempts by municipalities to address these risks through procurement and outlines how a human rights-based approach can help clarify the distinct roles of municipal and private actors in intelligent-community design and better equip both municipal and private actors to fulfill their duties and responsibilities. For example, large and complex intelligent-community technology projects, such as the urban development project proposed by Sidewalk Labs for Toronto’s eastern waterfront, may require unprecedented measures—such as an independent human rights impact assessment (HRIA). Most municipalities, however, will not have the resources for such a process. In addition, most projects contemplated by cities are of a much smaller size and scope. This paper identifies a suite of scalable tools for protecting human rights in intelligent communities, derived from the international human rights law framework and the UN Guiding Principles on Business and Human Rights (UN Guiding Principles). While many municipalities already take a commendable approach to considering social impact through procurement, this can be broadened and formalized through a better understanding of human rights and the array of tools for their protection.

¹ UN General Assembly, Report of the Special Rapporteur on Extreme Poverty and Human Rights, A/74/493 (October 11, 2019), <https://undocs.org/pdf?symbol=en/A/74/493>.

² Tina Kempin Reuter, “Human Rights and the City: Including Marginalized Communities in Urban Development and Smart Cities,” *Journal of Human Rights* 18, no. 4 (2019): 382–402, <https://doi.org/10.1080/14754835.2019.1629887>.

Human Rights Risks in Intelligent-Community Procurement

THE INCREMENTAL APPROACH TO BUILDING AN INTELLIGENT COMMUNITY

While an intelligent community calls to mind a community of fully integrated technologies, like that proposed by the Sidewalk Toronto project, most procurement related to intelligent communities does not occur on that scale or timeframe. Rather, cities often identify single projects—gaps in infrastructure, mobility needs, city services, or sustainability—that may use technology to make them more efficient, equitable, or accessible.

Municipal governments are procuring solutions to improve their digital infrastructure or deliver digital services, using technologies that strengthen connectivity; collect data; clean, organize, and secure those data; and translate data into citizen services. Even a small project—such as implementing a smart mobility project for real-time monitoring of public transit—implicates numerous technologies (e.g., sensors, smartphone applications, and the network infrastructure to support them). In turn, each of these technologies and projects carries with them potential benefits and risks to consider before implementation. Furthermore, the long-term risks and benefits of projects can be difficult to assess as new layers of a city's digital infrastructure may be added incrementally, with different impacts over time as the makeup of a city itself also changes.

The risk profile of municipal projects involving digital technologies can vary extensively. Projects related to infrastructure monitoring and mapping, for instance, may carry relatively low potential for risks to privacy or other human rights on account of the relative or total absence of personal data being collected or used. Others, such as sensors embedded on traffic lights, for instance, will depend on the type of data being collected (e.g., de-identified images versus the mere detection of a presence), the application of data minimization and purpose limitation principles, or the effectiveness of de-identification and measures to prevent re-identification. Cities have also become one of the principal test beds for experimenting with new approaches to open data. Where one of the purposes of a project is to make any data collected publicly available for open innovation purposes—and therefore used by municipal departments,

private sector innovators, and the public alike—new models of accountability and oversight for data governance may be needed to ensure that future usages of the data respect the public interest.

This section provides several examples of past and present RFPs in municipalities seeking to procure technologies that strengthen digital infrastructure or provide digitally enabled services and introduces potential human rights risks. For a full list of RFPs evaluated for the author's examination of intelligent-community procurement, see Appendix A.

INTELLIGENT-COMMUNITY RFPs AND RELEVANT RISKS

I: Strengthening Digital Infrastructure

Projects that strengthen digital infrastructure may address connectivity (broadband, Wi-Fi, cellular service); data collection (Internet of Things and associated infrastructure, among other technologies); data analysis (AI/machine-learning software solutions, database solutions); or cybersecurity and privacy-enhancing technologies. All of these contribute to a municipality's ability to gather data (whether from technologies or crowdsourced public knowledge) and improve efficiency and sustainability.

As one example of digital infrastructure procurement, several contemporary RFPs propose installing advanced systems to detect water leaks and provide advanced electricity metering, projects that save municipalities money and energy while collecting data in public and private spaces. Such solutions collect and curate live data to troubleshoot operational issues, find leaks, and minimize the need for emergency repairs.³ Projects such as these that improve the efficiency of municipal infrastructure are known to have positive impacts on resource conservation and municipal savings.⁴ Yet to maximize the intended benefits of such projects, it remains important to consider and attempt to mitigate potential risks associated with them. Energy-monitoring technologies, for example, may disproportionately impact individuals or communities that consume more energy on account of their age, illness, or a disability. In addition, new technologies like smart metering systems create valuable data that may require innovative approaches to data protection and cyber security.⁵ Accordingly, a close analysis of human right risks at the foundation of intelligent communities—digital infrastructure—is necessary to ensure the equitable delivery of public services.

³ For an example, see Regional Municipality of Durham, ON, Notice for Pilot Project for Smart Cities Water Leak Detection Technology (RFP), NRP-1066-2020, 2020; City of New Westminster, BC, Advanced Metering Infrastructure System (RFQ), NWRFAQ-19-01, 2019.

⁴ For example, see Steven Renzetti and Diane Dupont, "Buried Treasure: The Economics of Leak Detection and Water Loss Prevention," Environmental Sustainability Research Centre (ESRC) Working Paper Series, 2013.

⁵ Rainer Knyrim and Gerald Trieb, "Smart Metering under EU Data Protection Law," *International Data Privacy Law* 1, no. 2 (May 2011): 121–28, <https://doi.org/10.1093/idpl/ipr004>.

II: Delivering Public Services

Ultimately, the vast majority of intelligent-community procurements aim to deliver an important service to citizens. This may manifest itself in the form of data collection and infrastructure tools which, as above, pave the way for improvements to sustainability or efficiency. Alternatively, procurement may be oriented toward immediate provision of a service.

Open government and citizen engagement platforms are common smart-cities projects within this category. Municipalities may procure dashboards or portals that allow citizens to examine public data, participate in decision-making, and share or discuss policy.⁶ Improvements to transit and mobility are another common example: cities may procure real-time passenger information systems, electronic payments systems, or Mobility as a Service (Maas) solutions.

Both of these examples have positive goals: ensuring citizen access to public decision-making and important transit information. Intelligent-community service provision raises the same question that municipal policymakers have always grappled with: how do cities ensure that the services they provide reach those citizens most in need and hardest to reach? While each of these projects may carry new potential risks associated with data collection and privacy, the question of equity of access is not novel. However, it may manifest in new ways through the involvement of new technologies. Data collection technologies used to improve public service planning and delivery (for example, in the context of urban transit and mobility solutions) may inadvertently distort access to transit services depending on the willingness or ability of individuals to become technology adopters. Furthermore, iterative systems, where data are collected about a service's use and then used to redesign that service, may create negative feedback loops in which underserved populations are inadvertently further marginalized.⁷

As cities seek to make information and access to public services available online, careful planning to guarantee digital inclusion and the accessibility of mobile applications, web sites, and engagement platforms become critical considerations to ensuring equal enjoyment of municipal life. Other projects listed in Appendix A, such as voice recognition

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technologies used by law enforcement, AI-enabled redaction of digital evidence, or chatbots used to improve public service delivery, may also raise preliminary concerns on account of the potential for bias associated with the datasets or machine-learning systems being proposed. These risks must be addressed by careful planning, as discussed in the following section, both through existing procurement mechanisms and other assessments.

A Human Rights-Based Approach to Intelligent-Community Design

ADDRESSING RISKS IN PROCUREMENT AND RFPs

This paper has thus far outlined a number of risks that may emerge from intelligent-community projects and technologies. These include crucial human rights-related considerations such as privacy, security, and equity. Despite these risks, human rights are not often included in intelligent-community RFPs.⁸ In fact, while procurement has been used to contest discrimination and bolster inclusive employment policy since the 1900s,⁹ under half of the RFPs analyzed for this paper (see Appendix A) included considerations of equitable hiring or other social impact parameters.

⁶ For example, see City of Vancouver, Provision of a Digital Engagement Platform (RFP), PS20191175, 2019.

⁷ This phenomenon is well known in questions of AI fairness and algorithmic bias, but described with greater scope in Cathy O'Neill, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (New York: Crown Publishers, 2016).

⁸ Olga Martin-Ortega and Claire Methven O'Brien, "Public Procurement and Human Rights: Interrogating the Role of the State as Buyer," in *Public Procurement and Human Rights*, ed. Olga Martin-Ortega and Claire Methven O'Brien (Cheltenham, UK: Edward Elgar Publishing, 2019).

⁹ Christopher McCrudden, "Buying Social Justice: Equality, Government Procurement & Legal Change," Oxford Legal Studies Research Paper No. 18, Oxford University Press, Oxford, 2007, <https://papers.ssrn.com/abstract=1014847>.

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This exclusion may be due in part to a divide among economists, legal theorists, and policymakers regarding the primary purpose of public procurement. As the traditional goal of public procurement is value for money,¹⁰ some theorists suggest that RFPs are an inefficient vehicle for achieving social goals.¹¹ They further assert that stipulation-laden procurement processes can deter suppliers from engaging with the proposal in the first place.¹² On the other hand, some theorists position the inclusion of human rights in public buying as “mandatory” and point to examples of successful procurement initiatives that support human rights, such as the Electronics Watch model.¹³

In addition to this theoretical divide, experts suggest that other practical concerns prevent municipalities from integrating human rights considerations into their procurement processes, including smaller budgets and access to a smaller pool of suppliers in rural Canadian communities.¹⁴

Although they are in the minority, some RFPs analyzed for this study include social impact guidance. Beyond committing to existing privacy and accessibility legislation (such as accessibility standards for customer service or the British Columbia Freedom of Information and Protection of Privacy Act), these municipalities added social impact statements to promote equity, accessibility, and non-discrimination. This section takes a closer look at the different levels of social impact guidance that emerged in the Information and Communications Technology Council’s analysis of RFPs.

SOCIAL IMPACT STATEMENTS IN INTELLIGENT-COMMUNITY RFPs

General commentary includes statements that link the vision, mission, or goals of the project with increasing social or digital inclusion. For example, a recent (2020) RFP to improve internet access states that the project aims to support “low-

income residents [who] don’t always have access to quality internet and if they do, it can be very expensive.”¹⁵ Another similarly notes that the “main purpose of [the Smart City project] is to support creating opportunities for increased social and digital inclusion for residents.”¹⁶

Optional statements of guidance provide more detailed direction than general commentary, but still let the suppliers decide whether to include the suggested social aims to their proposal. An RFP for a bike sharing system, for example, included a statement that the city preferred purchasing a system that is “accessible for those without a credit card or mobile phone.”¹⁷ Similarly, in a Civic Accelerator RFP, suppliers are warned that “if the solution relies on public participation, it has to be inclusive and ensure that factors such as socioeconomic status, homeownership, or race don’t unfairly benefit some streets and neighbourhoods over others.”¹⁸



¹⁰ “Agreement on Government Procurement,” World Trade Organization, accessed November 19, 2021, https://www.wto.org/english/tratop_e/gproc_e/gp_gpa_e.htm.

¹¹ Jody Freeman, “Extending Public Law Norms Through Privatization,” *Harvard Law Review* 116, no. 5 (2003): 1285–1352, <https://doi.org/10.2307/1342728>.

¹² Anastasia Konina, “Promoting Human Rights in the Context of Police Procurement: A Study of Predictive Policing Instruments,” McGill Graduate Research Series: Law and the City (forthcoming).

¹³ Martin-Ortega and O’Brien, “Public Procurement and Human Rights”; Olga Martin-Ortega, “Public Procurement as a Tool for the Protection and Promotion of Human Rights: A Study of Collaboration, Due Diligence and Leverage in the Electronics Industry,” *Business and Human Rights Journal* 3, no. 1 (January 2018): 75–95, <https://doi.org/10.1017/bhj.2017.35>.

¹⁴ Anonymous, interview by Maya Watson, July 21, 2021.

¹⁵ Cape Breton Regional Municipality, NS, Public Wi-Fi Initiative (RFP), CBRM EOIO1-2020, 2020.

¹⁶ Parkland County, AB, Smart Parkland Feasibility Study (RFP), P191115SI, 2019.

¹⁷ City of Kingston, ON, Supply and Operate a Kingston Community Bike Sharing System (RFP), RFP-F31-CS-REEI-2018-02, 2018.

¹⁸ City of Guelph, ON, Civic Accelerator Program (RFP), RFP 19-110, 2019.

Social impact in evaluation scores requires suppliers to fulfill specific criteria related to social impacts to become eligible. For example, an RFP might request that materials, equipment, and services be procured from minority-owned businesses. Social impacts in RFP evaluation scores also appeared as points for suppliers 1) who have targeted hiring initiatives for marginalized groups,¹⁹ 2) whose staffing reflects “social value and economic inclusion supporting equity, diversity, inclusion, and reconciliation,”²⁰ and 3) whose proposal details “Indigenous Person Hours, Indigenous Ownership, or Indigenous Engagement.”²¹

As evidenced by the varying levels of detail and commitment demanded by the few RFPs that chose to include social impact considerations, there is little standardization around human rights risks in tech RFPs, nor do these RFPs typically name “human rights” as a concern. While there are exceptions to this rule, of the RFPs read for this study, many of those that feature social impact parameters are procuring solutions to address specific social issues, such as cyclist rights or mental health. Far fewer efficiency-focused RFPs (for example, on energy management or technologies used to improve public service planning) included social impact guidelines.

While research supporting the inclusion of HRIAs in tech RFPs is growing,²² so are the complexities of the technologies in question and their connection to the human rights issues. Accordingly, additional tools may be required to help cities name human rights in their procurement mechanisms and consider them in a standardized, methodical way regardless of the social or economic goals of the technology-related procurement. The following section outlines how the international human rights law framework and guidance contained in the UN Guiding Principles can help equip both cities and corporate actors to fulfill their human rights obligations in the context of intelligent communities.

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DEFINING AND UNDERSTANDING HUMAN RIGHTS IN PUBLIC-PRIVATE PARTNERSHIPS

The international human rights law framework, supported by the UN Guiding Principles, contains globally authoritative guidance for state actors such as municipalities, as well as companies, regarding their distinct roles and responsibilities for upholding human rights and freedoms.²³

State and corporate actors are expected to assess their activities against all internationally recognized human rights including, at minimum, the International Bill of Human Rights.²⁴ Depending on the context, businesses may need to consider additional standards, such as the UN Convention on the Rights of Persons with Disabilities, regarding potential human rights impacts on individuals belonging to specific groups or populations at heightened risk of vulnerability or marginalization.²⁵ In the Canadian context, it is critical to consider the UN Declaration on the Rights of Indigenous Peoples, as well as engagement with Indigenous groups more broadly, to work toward the greater project of reconciliation.

Clarifying responsibilities. First, the UN Guiding Principles can clarify the distinct roles and responsibilities held by state and corporate actors in the international human rights law framework. This distinction is particularly useful for municipal digital transformation projects where unclear procurement

¹⁹ City of Kelowna, BC, LED Lighting Retrofit for Parkade Structures (RFP), RFP T20-046, 2020, <https://www.kelowna.ca/business-services/business-city/bidding-opportunities/current-bidding-opportunities>.

²⁰ City of Vancouver, Provision of a Digital Engagement Platform (RFP).

²¹ City of Saskatoon, SK, Installation of LED Fixtures for the LED Conversion Project (RFQ), RFQ-20-0290, 2020, <https://sasktenders.ca/content/public/Search.aspx>.

²² Konina, “Promoting Human Rights in the Context of Police Procurement.”

²³ UN Office of the High Commissioner for Human Rights (OHCHR), *Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework*, June 16, 2011, https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf (hereafter cited as *UNGPs*). The OHCHR has launched a dedicated project to help governments, companies, and other stakeholders understand how the UN Guiding Principles can be tailored and applied to the context of digital technologies and AI. See “B-Tech Project,” OHCHR, accessed November 19, 2021, <https://www.ohchr.org/EN/Issues/Business/Pages/B-TechProject.aspx>.

²⁴ The International Bill of Human Rights consists of the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights, as well as the principles concerning fundamental rights set out in the International Labour Organization’s Declaration on Fundamental Principles and Rights at Work.

²⁵ *UNGPs*, 13–14.

processes can create a diffusion of responsibility around data governance or privacy, confusing the roles and responsibilities of the actors in these public-private partnerships.

While states have a positive duty to *respect, protect, and fulfill* human rights, businesses have a *responsibility to respect* human rights.²⁶ As part of their positive duties, state actors are expected to consider the need to adjust the “full range of measures, including policies, legislation, regulations, and adjudication” to respond to evolving human rights considerations.²⁷ The corporate responsibility to respect human rights cautions that businesses should “avoid causing or contributing to adverse human rights impacts through their own activities, and should address such impacts when they occur.”²⁸ Included in a business’s responsibilities is the expectation to adopt a human rights policy, undertake regular HRIAs as part of an ongoing due diligence process, and develop corporate grievance mechanisms to provide relief in the event of abuse.

OPERATIONALIZING HUMAN RIGHTS PROTECTIONS IN PUBLIC-PRIVATE PARTNERSHIPS FOR DIGITAL TRANSFORMATION: BEYOND PROCUREMENT

The late professor John Ruggie, former UN Special Representative on business and human rights who stewarded the development of the UN Guiding Principles, has stated that public-private partnerships should have in place both “measures to reinforce existing state duties as well as corporate due diligence processes.”²⁹ No matter the relationship structure of actors involved in a digital transformation project, cities can neither abdicate nor delegate their higher-order duties to protect and fulfill the human rights of their citizens.

As such, there are a number of proactive measures and governance tools that cities can make use of to better equip themselves for addressing the unique human rights risks arising from the adoption of digital systems.

Procurement. Procurement represents one of the earliest stages at which a municipality can impose specific requirements on project proponents. Incorporating the elements of a business’s responsibility to respect human rights into RFPs under the UN Guiding Principles could help embed respect for human rights into digital transformation projects from the very beginning. Cities could, for example, assign a human rights impact score to vendors and proposals. To this end, RFPs could include the requirement to do the following:

- Provide a copy of the organization’s corporate human rights policy adapted to the digital context and identify a focal point responsible for overseeing its implementation.³⁰
- Demonstrate adherence to a risk management process that accounts for the potential human rights impacts of a proposed digital system, consistent with the UN Guiding Principles framework for human rights due diligence.
- Provide a copy of the organization’s internal responsible data and AI governance policies and procedures.
- Provide a brief, summary self-assessment of the potential human rights impacts of the project, noting the most salient risks and specific approaches to mitigating them.
- Comply with a series of project-specific digital rights embedded directly into procurement contracts, including penalties for breach.

However, in the event several digital systems are interacting, the evaluation of potential human rights impacts may be more complex than the methods listed above are able to address. As Mantelero and Esposito have noted, the combined effect of integrating multiple technical layers in an intelligent-community environment, including data-intensive

²⁶ UNGPs, 13–14. See also OHCHR, *The Corporate Responsibility to Respect Human Rights: An Interpretive Guide*, 2012, https://www.ohchr.org/Documents/Publications/HR.PUB.12.2_En.pdf.

²⁷ UNGPs, 13–14.

²⁸ UNGPs, 13–14.

²⁹ John Ruggie, “Making Public-Private Partnerships Work,” Thomson Reuters Foundation News, September 11, 2013, <https://news.trust.org/item/20130911091253-vmh6s/?source=hppartner>.

³⁰ The UN High Commissioner on Human Rights has stated that technology companies “should adopt an explicit policy statement outlining their commitment to respect human rights throughout the company’s activities.” See United Nations Global Compact Office and OHCHR, *A Guide for Business: How to Develop a Human Rights Policy*, 2011, https://www.ohchr.org/Documents/Publications/DevelopHumanRightsPolicy_en.pdf. The Ranking Digital Rights project, which ranks the world’s biggest technology companies in terms of their respect for freedom of expression and privacy, uses the quality of human rights policies as a key element of its methodology: “To get the highest scores, companies must disclose policies that are also responsible policies – ones that can effectively protect and respect users’ rights.” See “Our Principles,” Ranking Digital Rights, last accessed November 19, 2021, <https://rankingdigitalrights.org/about/principles/>.

and AI systems, results in “a whole system that is greater and more complicated than the sum of its parts.”³¹ In such a context, the assessment of potential risks to human rights and freedoms cannot reasonably be carried out on a case-by-case analysis of each application. Rather, the assessment may require an “integrated approach that looks at the whole system and context, as well as the interaction amongst its various components, which may have a wider impact than each component taken separately.”³² This is an important consideration for cities scaling digital transformation incrementally, one project or system at a time, as the need for broader civic engagement or consideration of the impacts of aggregate digital systems may be less evident.

Citizen engagement. Citizen participation in public life is key to protecting and advancing other human rights.³³ Indeed, the Draft Principles for Dignity in the Built Environment, an international initiative to develop human rights principles covering all phases of the development and use of urban spaces, sets the expectation that “individual residents and communities must have clear avenues to have a say over the present and future of their neighbourhoods.”³⁴

In particular, meaningful civic engagement that features robust discussion, education, and consultation on digital rights, particularly with regards to vulnerable communities, is critical for shaping a democratic, rights-respecting municipal vision regarding the role of technology in advancing pressing public objectives. Consultation can also play a significant role in helping to identify and mitigate—or altogether avoid—potential adverse impacts of proposed digital projects or systems on human rights and freedoms. In larger-scale projects, consultation may not be enough. Instead, stakeholder participation in the governance of the project, including in key decisions, may be necessary.³⁵

Meaningful citizen engagement remains critical to success over the course of the project, particularly as demographics with different experiences and capabilities grapple with new digital concepts, forms of data collection, and use in the public space. The Digital Transparency in the Public Realm initiative, which grew out of a co-design project led by Sidewalk Labs employees in Toronto, has led to the publication of an open-source communication standard to enable transparency, accountability, and better control for people in municipal digital environments.³⁶ Cities can rely on the standard to improve public transparency of the data that technologies collect, by whom the data are collected, and for what purposes.

Digital rights policy. For cities with limited legislative or regulatory power over matters such as data protection, or data and AI governance, developing internal policies and procedures is a useful place to start. For example, cities could establish a human rights policy for digital adoption specifically adapted to their municipal context. To this end, a network of more than 50 cities across the globe have joined forces as the Cities Coalition for Digital Rights (CCDR) to articulate a vision and exchange best practices to protect and uphold human rights in municipal digital transformation projects.³⁷ The CCDR’s Declaration affirms a series of principles that can inform further municipal policy development, project design, and risk management around key topics, including the following:

- Equal access to the internet and digital literacy
- Privacy, data protection, and security
- Transparency, accountability, and non-discrimination of data, content, and algorithms
- Participatory democracy, diversity, and inclusion
- Open and ethical digital service standards

³¹ Alessandro Mantelero and Samantha Esposito, “An Evidence-Based Methodology for Human Rights Impact Assessment (HRIA) in the Development of AI Data-Intensive Systems,” *Computer Law & Security Review* 41 (July 2021): <https://doi.org/10.1016/j.clsr.2021.105561>.

³² Mantelero and Esposito, “An Evidence-Based Methodology.”

³³ The right to participate in public affairs is elaborated in 2018 guidelines developed by OHCHR. See OHCHR, *Guidelines for States on the Effective Implementation of the Right to Participate in Public Affairs*, n.d., https://www.ohchr.org/Documents/Issues/PublicAffairs/GuidelinesRightParticipatePublicAffairs_web.pdf. The New Urban Agenda, endorsed by the United Nations General Assembly in 2016, committed government to “promoting institutional, political, legal and financial mechanisms in cities and human settlements to broaden inclusive platforms, in line with national policies, that allow meaningful participation in decision-making, planning and follow-up processes for all, as well as enhanced civil engagement and co-provision and co-production.” See UN-Habitat, *New Urban Agenda*, United Nations Conference on Housing and Sustainable Urban Development, Quito, EC, 2016, <https://habitat3.org/documents-and-archive/new-urban-agenda/>.

³⁴ Institute for Human Rights and Business, *Draft Principles for Dignity in the Built Environment*, July 2019, https://www.ihrb.org/uploads/reports/Draft_Principles_for_Dignity_in_the_Built_Environment_1.pdf.

³⁵ Tina Kempin Reuter, *Smart City Visions and Human Rights: Do They Go Together?*, Carr Center for Human Rights Policy, 2020, https://carrcenter.hks.harvard.edu/files/cchr/files/CCDP_006.pdf.

³⁶ Digital Transparency in the Public Realm (website), accessed November 19, 2021, <https://dtpr.helpfulplaces.com/>.

³⁷ Cities Coalition for Digital Rights (website), accessed November 19, 2021, <https://citiesfordigitalrights.org/>.

No matter the relationship structure of actors involved in a digital transformation project, cities can neither abdicate nor delegate their higher-order duties to protect and fulfill the human rights of their citizens.

The City of Montréal has also developed a Digital Data Charter to help ensure that the municipality, its partners, and collaborators “guarantee human rights in the digital age.”³⁸ The Digital Data Charter identifies 13 guiding principles applicable to the “digital data lifecycle”—many of which are derived from international human rights law standards. In the context of the Sidewalk Labs proposals for the Quayside project in the City of Toronto, Waterfront Toronto had considered plans to enforce compliance with project-specific digital rights—such as the prohibition against surveillance or the use of facial recognition technologies—by embedding project guidelines directly into procurement contracts.³⁹

Institutional capacity. Cities may also consider whether changes to municipal institutions may be necessary to meet duties under the UN Guiding Principles, which include taking appropriate measures such as “judicial, administrative, legislative, or other appropriate means” to ensure that an effective remedy is available in the event of abuse. In the municipal context, this might include budgeting for personnel with appropriate expertise, or, like the City of Porto, empowering existing institutions such as the office of the city ombudsman with new resources and an expanded mandate to investigate complaints flowing from potential violations of a city’s digital rights policy.⁴⁰

Innovative data governance. As cities begin to scale up digital transformation efforts, new governance models may be necessary to improve transparency, oversight, and accountability frameworks related to the governance of data and AI systems. Critics of the open data model proposed by Sidewalk Labs for the City of Toronto, the so-called “Urban Data Trust,” identified the need for greater investments into the legal and technical infrastructure required to support

responsible data governance and sharing in the public interest. In particular, new institutions that serve as trusted data intermediaries, data trusts, or safe-sharing sites that offer assurances and auditability of data access and use against established data standards could be an important tool for enabling effective regulation and innovation.⁴¹

Algorithmic transparency. In order to provide the public with a “window” into the AI systems that the cities use, Amsterdam and Helsinki implemented AI transparency registries. The registers incorporate an overview of the AI systems, details on the datasets they use, how data are processed, how inclusion is ensured, risks, and whether the tools have human oversight. Systems already listed in Helsinki include chatbots that answer questions about pregnancy, medical issues, relevant public health services, and city parking services or make recommendations for books held in the city’s public library. Amsterdam’s Algorithm Register includes a program to monitor parking compliance, automatic categorization of citizen-reported issues, and an algorithm that helps prioritize investigations into reports of possible illegal holiday rentals. Both cities plan to bring more applications into the registers in due course.

Of course, these are just some of the examples of the legal, governance, and technical innovations that cities may consider implementing prior to procuring digital and AI systems to ensure respect for human rights. They may be adapted in proportion to the scale and risk profile of the digital transformation project under consideration. A host of other initiatives undertaken by cities to promote respect for human rights in the digital age is publicly available on the CCDD website.⁴²

³⁸ Laboratoire d’Innovation Urbaine et Service des Technologies de l’Information, *Montréal’s Digital Data Charter*, October 2020, https://laburbain.montreal.ca/sites/villeintelligente.montreal.ca/files/25817-charte_donnees_numeriques_ang.pdf.

³⁹ Waterfront Toronto, *Discussion Guide: Waterfront Toronto’s MIDP Evaluation Consultation*, Round 2, February 2020, <https://quaysidetoronto.ca/wp-content/uploads/2020/02/Quayside-Discussion-Guide-Round-Two-Consultation-February-18-2020.pdf>.

⁴⁰ “Porto,” Cities Coalition for Digital Rights, accessed November 19, 2021, <https://citiesfordigitalrights.org/city/porto>.

⁴¹ Lisa M. Austin and David Lie, “Safe Sharing Sites,” *New York University Law Review* 94, no. 4 (October 2019): 581–623; Teresa Scassa, “Designing Data Governance for Data Sharing: Lessons from Sidewalk Toronto,” *Technology & Regulation* (2020): 44–56; OpenNorth, *Data Governance and Digital Infrastructure: Analysis and Key Considerations for the City of Toronto*, June 2020, <https://assets.ctfassets.net/e4wa7sgik5wa/2EvFXS5BAmQ0gTv4MPY8cz/6ecf0cd9b46b2250e6dfe4883c2924e0/2020-07-10-Open-North-Data-Governance-Report-Main-report.pdf>.

⁴² Cities Coalition for Digital Rights (website).



Rendering of potential Quayside development | Standard Practice

INDEPENDENT HUMAN RIGHTS IMPACT ASSESSMENTS: LESSONS FROM SIDEWALK LABS

When a city is contemplating the simultaneous integration of multiple interacting digital systems or is launching a complex, large-scale digital transformation project that has the potential for broad impacts on the community, a more comprehensive assessment than provided by the tools outlined above may be necessary. The independent HRIA commissioned by Waterfront Toronto on Sidewalk Labs's proposals for the Quayside project represents one potential example of such a scenario.

An HRIA is “a tool to evaluate the potential or actual impact of an organization’s strategy, practice, or product on people’s human rights.”⁴³ The UN Guiding Principles recommend that HRIAs should be undertaken regularly and at appropriate stages of a business’s operations as part of its human rights due diligence processes, for instance, prior to a new activity or relationship, major decisions, or changes in its operations (e.g., market entry, product launch, policy change, or wider changes to the business), and periodically throughout the life of an activity or relationship. In general, the assessment should include identifying who may be affected, cataloguing the most salient human rights issues, projecting how the proposed activities could adversely impact stakeholders’ human rights, and identifying mitigations that might eliminate or reduce the level of risk to an acceptable level.

In the case of Quayside, Sidewalk Labs’s project proposal contemplated the development of more than 50 digital solutions and included extensive public consultations. As part of its consideration of the proposals, and in light of public discussion of its digital aspects, Waterfront Toronto commissioned an independent preliminary HRIA based on the Universal Declaration of Human Rights, the UN Guiding Principles, the Cities Coalition for Digital Rights statement, and Waterfront Toronto’s Digital Principles. While the final report of this HRIA was never publicly released after Sidewalk Labs pulled out of the project, the assessment—which included regular exchanges with representatives from Waterfront Toronto and Sidewalk Labs as well as extensive consultations with subject matter experts and local stakeholders—contributed to the rapid acceleration and enhancement of existing human rights-based governance efforts related to the project in a relatively short period of time.

While labour-intensive HRIAs that involve extensive research and field work may be desirable in complex multi-factor scenarios, they are likely too burdensome and costly to serve as appropriate models for projects of a smaller scale.⁴⁴ As guidance regarding the design, scope, timing, and methodologies for HRIAs conducted on digital systems remains in development, consideration should be given to designing “light-touch” HRIAs, with methodologies calibrated to the nature of the context, risk profile, and/or stage of the digital transformation project in question.⁴⁵

⁴³ Mark Latonero and Aaina Agarwal, *Human Rights Impact Assessments for AI: Learning from Facebook’s Failure in Myanmar*, Carr Center for Human Rights Policy, 2021, <https://carrcenter.hks.harvard.edu/files/cchr/files/210318-facebook-failure-in-myanmar.pdf>.

⁴⁴ Brandie Nonnecke and Philip Dawson, *Human Rights Implications of Algorithmic Impact Assessments: Priority Considerations to Guide Effective Development and Use*, Carr Center for Human Rights Policy, October 21, 2021, <https://carrcenter.hks.harvard.edu/publications/human-rights-implications-algorithmic-impact-assessments-priority-considerations>.

⁴⁵ Nonnecke and Dawson, *Human Rights Implications*. See also OHCHR, “B-Tech Project.”

Conclusion

Digital transformation can help cities meet critical public objectives—from sustainable transit and efficient energy programs to innovation and economic development opportunities for local governments and organizations. As cities await longer-term legislative and regulatory development by other levels of government, many have taken up the challenge of developing innovative ways to address the potential environmental and social impacts of digital systems, augmenting internal policies and procurement processes. More recently, others have undertaken significant efforts to translate international human rights standards and guidance to digital technologies in the municipal context, including devising new policy, governance, and technical infrastructure to mitigate and remedy potential harms.

This paper has examined the types of digital systems and infrastructure being commissioned by cities, alongside the potential risks that these projects may involve. While some municipalities address these risks through social impact parameters in traditional procurement, they rarely name or consider human rights in these documents. Furthermore, as incremental digital layers of an intelligent community are built and begin to interact, the piecemeal approach offered by procurement is often insufficient. Consideration of human rights leads to a thorough approach to equity, public and private responsibilities, and citizen engagement. Accordingly, this paper highlights a swath of alternatives and complements to procurement that can improve cities' abilities to secure human rights. Finally, this paper examines the role of HRIAs, concluding that while they are valuable for large-scale, complex projects like Sidewalk Labs in Toronto, smaller projects and municipalities will require significant support to use independent HRIAs, and a "lighter touch" method should be developed to address these municipalities' needs.

All told, the promise of intelligent-community technologies to serve the public interest through resource conservation and equitable access to municipal services is too great an opportunity to forfeit through insufficient consideration of their potential negative impacts. Municipalities have an opportunity to lead in responsible technology adoption by embracing thorough and innovative human rights-based approaches to intelligent-community design.

Appendix A: Intelligent-Community RFPs

Each of the following categories provides examples of intelligent community-related procurements across Canada in recent years.

STRENGTHENING DIGITAL INFRASTRUCTURE

Connectivity

Municipalities are strengthening or introducing public Wi-Fi, universal broadband, or cellular service. Improved connectivity infrastructure provides the baseline required for other intelligent-community projects: much data collection, service delivery, and public engagement relies on high-quality connectivity.

- Next Generation Broadband Network (Brooks, Alberta, AB-2020-04754)
- Internet Service Enhancement (Clearwater County, Alberta, AB-2020-03722)
- Public Wi-Fi Initiative (Cape Breton Regional Municipality, Nova Scotia, CBRM_EOI01-2020)
- Cellular Service Expansion (Inverness, Nova Scotia, MCI-RFP-2020-004)
- Smart Parkland Feasibility Study (Parkland County, Alberta, P191115SI)
- Managed Wireless Internet Services to Provincial Parks (Prince Edward Island, PEIG-5484)
- Integrated Networking Platform (Canmore, Alberta, 2020-02769)
- VOIP Telephone System (Yellowknife, Northwest Territories, RFP #20-058)

Projects for Data Collection

While intelligent-community conversations almost always discuss the importance of the Internet of Things (IoT) as a foundational requirement for interconnected, efficient urban spaces, IoT itself is not a technology but an idea enabled by a wide variety of technologies, including hardware (such as embedded sensors or chips), software, and communications technology. One could, for example, implement short-range wireless communication between devices using Bluetooth or near-field communication (NFC), two technologies with different applications within the bigger IoT bucket. IoT hardware uses everything from short-range “multi-hop” communication, to the more efficient use of fourth- and fifth-generation (5G) cellular networks, to commercial long-range, low-power wireless technologies.

Sustainability and waste

- Smart System Waste Containers (North Vancouver, British Columbia, RFP.090.17)
- Water Leak Detection Correlators Technology (Red Deer, Alberta, RFI-2020-14)
- Notice for Pilot Project for Smart Cities Water Leak Detection Technology (Durham, Ontario, NRP-1066-2020)

Infrastructure monitoring and mapping

- Network of Seismic Sensors for the North Shore (North Vancouver, British Columbia, RFP.054.18)
- Advanced Metering Infrastructure System (New Westminster, British Columbia, NWRFAQ-19-01)
- Satellite Imagery & Community-Based Mapping Services (Iqaluit, Nunavut, RFP #2018-29)
- WTS Remote Security Monitoring (West Kelowna, British Columbia, RFP #R20-542)

Projects to Clean and Analyze Data

While many kinds of sensor networks have the ability to collect immense quantities of instantaneous data, synthesizing and analyzing those data is another matter. Without the help of programs for cleaning, organizing, and analyzing data, only a tiny fraction of all collected data would be leveraged to its full extent.

Machine learning (ML) identifies and improves on methods for teaching computers to interpret and act on many different types of data, including, increasingly, language and images. As such, the interconnected IoT and “smart infrastructure,” when paired with ML algorithms, can collect information, analyze it, and make decisions, such as dimming a streetlight or identifying a water leak. ML is just one example of a technology for cleaning, organizing, and analyzing data in an intelligent-community project.

Many of the data collection RFPs above involve some aspect of data cleaning and analysis. For example, New Westminster’s smart grid proposal involves many steps beyond the simple collection of data. Below are a few additional RFPs that involve data analysis.

- Law Enforcement Voice Transcription Software (Brandon, Manitoba, RFP-179/19)
- Integrated Camera and Digital Evidence Management Solution (Thunder Bay, Ontario, RFEI 01 – 2019)

- Civic Accelerator Program (Guelph, Ontario, RFP 19-110)
- Conversational Artificial Intelligence (AI) Phase 1 (Ottawa, Ontario, RFP 32319-91871-P01)
- Purchase and Implementation of Various IT Systems (Brandon, Manitoba, RFP-19-030)

Projects to Keep Data Secure and Private

There are a variety of technologies that primarily aim to protect privacy and cybersecurity. Importantly, many of the RFPs discussed thus far incorporate some cybersecurity requirement or privacy guidance. Synthetic data, security technologies, privacy technologies may also be procured individually, such as in the following:

- Internet of Things (IoT) Security Consulting Services (Bridgewater, Nova Scotia, RFP2020-08)

DELIVERING PUBLIC SERVICES

Open Government

- Provision of a Digital Engagement Platform (Vancouver, British Columbia, RFP No. PS20191175)
- SIP/ST Smart Screen Kiosk for City Hall (Ottawa, Ontario, RFQ 32319-20422-Q01)

Smart Mobility

- Smart Traffic Feasibility Study (Leduc, Alberta, AB-2019-04705)
- Regional Smart Fare Solution (RSFS) (Edmonton, Alberta, 928920)
- Automated Fare Collection (AFC) System, On Board Announcement System and Transit CAD/AVL Software (Brandon, Manitoba, RFP-108/19)
- Supply of a Fleet Management Information System (Vancouver, British Columbia, PS20161295)
- Consulting Services – Electric Vehicle Strategy (Victoria, British Columbia, RFP-20-072)
- Provision of EV Infrastructure (BC Hydro, British Columbia, RFP 1391)
- Real-Time Passenger Info Electronic Payments System (Whitehorse, Yukon, RFP 2019-093)
- Smart City Parking Technology Solutions (Saskatoon, Saskatchewan, OS19-0529)
- Level 2 EV Charger Installations (Summerside, Prince Edward Island, SUM-014)
- Electric School Bus (Prince Edward Island, PEIG-5521)
- Electrical Infrastructure for Level 2 EV Charging Stations (Kingston, Ontario, RFP-F31-CS-REEI-2018-04)
- Supply and Operate a Kingston Community Bike Sharing System (Kingston, Ontario, RFP-F31-CS-REEI-2018-02)
- Para Transit Mapping Upgrades & Notification Software (Brandon, Manitoba, RFP-124/19)

Sustainable Infrastructure

- Solar Resource Measurement Equipment and Services (Berwick, Nova Scotia, AREASOLARRESOURCE)
- Call for Energy Investment Implementation Services (Western Regional Enterprise Network, Nova Scotia, 20200805WRENEIIMP)
- LED Lighting Retrofit for Parkade Structures (Kelowna, British Columbia, RFP T20-046)
- Installation of LED Fixtures for the LED Conversion Project (Saskatoon, Saskatchewan, RFQ-20-0290)
- Pownal Parkade Energy Efficient LED Lighting Upgrade (Charlottetown, Prince Edward Island, 2019-157)
- Energy Performance Contract (Charlottetown, Prince Edward Island, 2019-153)
- Conversion of the Outdoor Lighting Network to LED and Installation of Smart Control and Monitoring System (Richmond Hill, Ontario, RFP-44-16)
- Request for Proposal Supply and Installation of Smart-Waste and Recycling Bins (Winnipeg, Manitoba, 646-2018)
- RFP for Engineering, Procurement, and Construction Services (Sault Ste. Marie, Ontario, RFP-SSG2019)
- Somba K'e Civic Plaza Lighting (Yellowknife, Yukon, RFP #15-055)

Healthcare

- Cortellucci Vaughan Hospital (Ontario, RFP No. 14-124P)
- SOA Remotely Delivered Counselling/Therapy and Clinical Supervision Services (Nunavut, RFP-2021-04-01)

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