# DSAP Supplemental Report on the Sidewalk Labs Digital Innovation Appendix (DIA)

# Summary

In August 2019, Waterfront Toronto's Digital Strategy Advisory Panel (DSAP) set out in a [Preliminary Commentary](#) its initial impressions, comments and questions on Sidewalk Labs' Master Innovation Development Plan (MIDP). Since then, significantly more information has been made public about the Quayside project, including a [Digital Innovation Appendix](#) (DIA) and the October 31 [Threshold Issues Resolution](#) letter.

This Report is supplemental to the Preliminary Commentary, identifying areas in which the additional information has addressed (in whole or in part) concerns raised and areas in which questions or concerns remain. Panelists have also taken the opportunity to provide input into other matters relevant to their expertise, including considerations related to digital governance and to Sidewalk Labs as an innovation and funding partner.

Comments include, but are not limited to:

- **Overall impressions of the DIA**: Overall, Panelists were generally in agreement that the DIA was a significant improvement over the MIDP and appreciated the amount of information provided in a more streamlined format. However, concerns remain - notably, that certain critical details are still outstanding.

- **Digital Governance**: While Panelists support the outcome of the October 31 Threshold Issues resolution, which reaffirmed that digital governance belongs exclusively in the purview of Waterfront Toronto and its government partners, the most significant outstanding issues for Panelists was generally the

lack of a fully realized digital governance framework and the need for expedited public sector leadership.

● **Digital Innovations - Digital Infrastructure**: Panelists acknowledged the potential benefits which could be realized through certain proposals, but questioned their appropriateness and necessity, as well as whether they create sufficient public benefits.

● **Digital Innovations - Digitally-Enabled Services**: Panelists expressed hesitance to provide specific advice to Waterfront Toronto on these services, noting that it was premature to do so before a subject-matter expert evaluated their efficacy and/or before certain key information was provided. Nevertheless for certain proposed innovations they questioned whether sufficient benefits had been identified to justify the proposed collection or use of data.

● **Ecosystem and Economic Development**: While panelists welcomed the additional detail on proposed initiatives they questioned whether they would be effective and advocated for the need for ongoing results measurement.

● **Partnership**: Though not explicitly requested by Waterfront Toronto, Panelists raised considerations related to digital governance with a Proponent whose parent company has the size, resources and influence of Alphabet - including, but not limited to, the need for clearly defined accountability and effective remedies. These comments – including the analysis presented in Appendix D - are provided in support of Waterfront Toronto's partnership evaluation.

As with the Preliminary Commentary, this Supplemental Report is neither a formal review nor an evaluation of the DIA or other materials, and does not represent a consensus position of the DSAP. However, it should be taken as an indication of the outstanding challenges that the DSAP feels should be addressed moving forward.

Lastly, the Panel notes that this review is based on a point in time - some of the digital proposals may further evolve, and some may be removed entirely. The DSAP looks forward to continuing to provide advice to Waterfront Toronto on the Innovation Plan for Quayside as it is developed and released, as well as (should the project proceed to this point) on any implementation agreements which may relate to the Panel's mandate. The Panel is also eager to work with Waterfront Toronto on the development of its Intelligent Community Guidelines.

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# Purpose of this Report

**Background**

On August 19, 2019, the Digital Strategy Advisory Panel (DSAP) provided Waterfront Toronto management with its *Preliminary Commentary and Questions on Sidewalk Labs' Draft Master Innovation and Development Plan* (the "Preliminary Commentary"). In that document, Panelists raised questions and concerns about the MIDP and made specific comments around various digital innovation and digital governance-related proposals.

Since that time, additional information about the project has been provided – including Sidewalk Labs' [Digital Innovation Appendix](#) (DIA), responses by both Waterfront Toronto and Sidewalk Labs ([Nov. 7, 2019 DSAP Meeting Book,](#) p. 79 and 105 respectively) to the specific questions and concerns raised in the Preliminary Commentary, and the [Threshold Issues Resolution](#) letter.

This Report is thus intended to be supplemental to the Preliminary Commentary, identifying areas in which the additional information has addressed (in whole or in part) concerns raised and areas in which questions or concerns remain.

Panelists have also taken the opportunity to provide input into other matters relevant to their expertise, including considerations related to digital governance and to Sidewalk Labs as an innovation and funding partner.

**Impact of the Preliminary Commentary and Intention of this Report**

At the November 7, 2019 DSAP meeting, Waterfront Toronto management expressed their appreciation for DSAP's Preliminary Commentary and described some of the impacts that it had. Specifically, it was noted that DSAP's detailed and incisive commentary on issues such as the challenges associated with the proposed Urban Data Trust, the need for the public sector to lead on governance, and the need to establish a firm requirement for data localization provided significant support to Waterfront Toronto in its discussions with Sidewalk Labs on the Threshold Issues. Panelists were glad that their report was useful, and expressed a mix of satisfaction and relief with the Threshold Issues resolution.

This Report is intended for a similar purpose. The Panel is aware that, as of this writing, Waterfront Toronto is in the process of developing an Innovation Plan and a set of Intelligent Community Guidelines, and is working toward a Board vote on this project scheduled for May 20th. We hope that the insights provided in this Report are able to feed into each of these processes.

**About this Report**

Given the timeframe provided for review and comment (and noting, in particular, that DSAP is a volunteer body), there was insufficient time for the Panel to carefully review all relevant aspects of the available materials,  deliberate as a body and draft a report which reflected a shared assessment of Sidewalk Labs' proposals to date. As such, like the Preliminary Commentary, this document is not a consensus report, but rather a summary of the feedback provided by Panelists. Where a sentiment is shared by most or all Panelists, this is highlighted.

As with the Preliminary Commentary, this report is by necessity partial. Thus, the Panel would like to be clear that: (i) the absence of comment about any element of the DIA or MIDP does not imply acceptance, approval or disapproval of that element; and, (ii) comments are provided based on Panelists' current understanding of the DIA/MIDP and other available information, and are subject to change.

Further, comments or questions on an element of the DIA or MIDP should not necessarily be interpreted as acceptance that Sidewalk Labs is the only appropriate party to address the comment/question, or to implement that (or any other) element of the Quayside project.

This Commentary (and its underlying comments) constitutes, in part, the advice that the Digital Strategy Advisory Panel is providing to Waterfront Toronto's management and Board to assist in its decision making regarding the Quayside project. It represents a set of individual questions, observations and critiques of the DIA/MIDP. However, a cautionary note: this may not necessarily identify all elements of the plan that may be considered positive, as the primary value the DSAP is providing at this stage in the process comes from identifying gaps, asking for clarification, or assessing proposals. This is stated in order to place these documents in context of the larger discourse around, and assessment of, planning for Quayside.

# Overall Impressions of the DIA

Overall, Panelists[1] were generally in agreement that the DIA was a significant improvement over the MIDP. They were glad to see the high level of detail provided (in a more streamlined, less repetitive manner), and welcomed the shift to using digital technologies in support of specific outcomes, rather than leading with digital. As noted by one Panelist, the DIA *"has finally allowed me to have a better understanding of the technology that [Sidewalk Labs is] hoping to deploy, and [to see the case being made about] how specific technology could benefit cities and the challenges they face today."*

However, even amongst those Panelists welcoming the increased level of detail (provided, in part, in response to DSAP's Preliminary Commentary), concerns remain. Questions were raised about, among other things:

- What details may have been omitted (or are not yet available) which are needed at this approval stage but will only surface once a more detailed "planning proposal"-style document has been prepared;

- Whether Sidewalk Labs has truly adopted a 'digital restraint' model (in which non-digital approaches are also considered), and whether a focus on data governance overlooks the

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[1] As noted prior, Panelists were not asked to confirm or deny their agreement with any comments made. Thus, attribution of a comment to "Panelists" means that multiple Panelists expressed a similar sentiment, but does not necessarily imply that all Panelists agree. Similarly, attribution to a single Panelist does not necessarily imply lack of agreement about the view / comment by other Panelists.

question of whether the collection of data (and associated surveillance load[2] on individuals) is justified in the first place;

● Whether the DIA is a reliable indicator of Sidewalk Labs' intentions or the ultimate end-state for this project.

Panelists also questioned whether and how the overall project proposal was impacted by the information put forward in the DIA. For example, while the literature review in section 4 of the DIA is thorough, it was unclear if or how the proposal was informed by the existing policies and approaches set out in that section. Similarly, some Panelists questioned whether the digital technology proposals in section 1 were influenced by Sidewalk Labs' approaches to responsible data use and inclusive design in Section 2. For an in-depth reflection on this latter issue as it relates to accessibility, please see Appendix C.

Again, overall the DIA is a significant improvement on the MIDP, but it remains problematic in important respects. There are still gaps to fill and the devil will be in the details – and Panelists expressed a wariness around evaluating the digital elements of the Quayside project without those details.

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[2] Note: In this document, the term "surveillance load" has been used to refer to the extent to which individuals' activities are measured, monitored, or otherwise tracked, regardless of whether the captured information can be associated with an identifiable individual.

# Policy Frontier: Digital Governance

**Overall Considerations**

Panelists support the outcome of the October 31 Threshold Issues resolution, which put digital governance exclusively in the purview of Waterfront Toronto and its government partners – at least one Panelist noted that this arrangement should never have been in question. However, this resolution did not actually fill in any gaps, instead only changing the approach to filling them. Noting that this is not necessarily a failing of the Digital Innovation Appendix, since of the details that Panelists felt need to be developed, the most significant were generally considered part of a fully realized digital governance framework.

Panelists also wanted to clarify that the comments raised in the Preliminary Commentary should not be read as an opposition to a modernized approach to digital governance, nor (necessarily) to the creation of a new body to oversee it. Rather, objections related to specific elements of the proposed Urban Data Trust, including (but not limited to) the fact that it was being defined by a private sector entity and how potential Charter issues might be addressed.

There is a significant legislative framework already in place related to digital governance, to which this project will be subject. However, there is a general acknowledgement – including by Sidewalk Labs – that this current framework has (potentially significant) gaps, especially in enforcement. Privacy Commissioners at both the provincial and federal levels have called for revisions to their respective laws, and the City of Toronto and provincial and federal governments are all undertaking reviews of and/or consultations on

their respective digital strategies. It is clear that the digital governance framework that will apply to the Quayside project – should it move forward – will evolve. The evaluation and approval process needs to take this into account.

The Panel is aware that, as a measure to address any current gaps without setting overall government policy, Waterfront Toronto has committed to developing a set of Intelligent Community Guidelines (ICGs). However, Panelists felt that the lack of any detailed information about these Guidelines being made public to this point (the Panel received an overview presentation on November 7, 2019, but has not received a draft or any further information about the document) makes it challenging to understand or comment on the impact these Guidelines will have on digital governance in Quayside.

Panelists emphasized that the challenge of developing an effective and legitimate digital governance regime should not be underestimated. It would be a significant achievement, but would need to involve a range of stakeholders bringing a variety of contending perspectives. This will take time. For example, beyond developing the contents of the Guidelines themselves, Panelists flagged the need to determine (and resource) a mechanism for operationalizing the guidelines through on-going review, monitoring and oversight, and enforcement.

Capacity, in particular, was frequently raised as an on-going challenge for digital governance. One Panelist noted that while DSAP can provide high-level guidance and commentary, the *"level of effort [to review digital solutions at each phase of development] is far beyond that which a quasi-volunteer part-time group such as DSAP could possibly provide"*, and that *"DSAP review will not substitute for the additional technical review that is required."* Another echoed this sentiment, noting that the asymmetry between Sidewalk Labs

significant capacity to generate material and capacity for review on the receiving end has led to a situation which does not lend itself to thorough, thoughtful review – and which may lead to the creation of a digital governance ecosystem which is overly responsive to this particular project (rather than being democratically-determined and vendor-agnostic).  A Panelist suggested that Waterfront Toronto will have to bring on additional resources – and potentially even review its organizational structure – if it opted to play a lead role in digital governance for Quayside (and – given the breadth of application of the proposed Intelligent Community Guidelines – the Designated Waterfront Area as a whole, as well as serve as a model for 'smart city' initiatives well beyond Toronto). Concern was also expressed that "*a lot is being thrown back to Waterfront Toronto and the City of Toronto [and] I'm not convinced they are fully ready to grapple with these issues.*"

Given these challenges, some Panelists questioned whether deadlines for approvals should be pushed back to ensure a solid policy foundation to be developed. Absent this, a recommendation was made that the Waterfront Toronto Board of Directors either defer any approval of the digital elements of the proposal until after a digital governance framework has been established, or to approve such elements provisionally (subject to review after completion of the framework).

**Specific Considerations**

Panelists have made multiple specific recommendations for governance considerations that might be incorporated into the the overall digital governance framework for Quayside (e.g. via the Intelligent Community Guidelines), and/or into Sidewalk Labs' internal accountability process via the Responsible Data Use Assessment. These are fully described in Appendix B, but as a sample include:

- **Boundaries of Data Governance**: Many Panelists agreed that the boundaries of what should be considered "digital governance" – and thus under the purview of Waterfront Toronto and its government partners, and not Sidewalk Labs – is unclear.

- **Data Localization**: As in the Preliminary Commentary, the issue of data localization was raised. One panelist clarified that the principle of Canadian data residency should include not just storage but also transmission, as data which transmits through the US is subject to NSA surveillance. Another recommended that the mission criticality of data should factor into any decision in which a lack of redundancy forces non-personal data to be stored outside of Canada; for example, Sidewalk Labs' Numina pilot – which involves 3-cameras measuring movement of de-identified individuals within Sidewalk's 307 Lakeshore exhibit space – would not seem to be negatively impacted by a brief loss of data in the event of a region failure, but nonetheless this was the reason given that data was stored outside of Canada. This was considered to be a concerning precedent, which should be addressed within the digital governance framework as it is developed.

- **De-identification:** Some Panelists felt that Sidewalk overly relies on de-identification at source as a sufficient basis for making personal data open for re-use. While de-identification can help protect personal information, a panelist noted that it does not remove it from Canada's data protection regimes or put it beyond the oversight of a privacy commissioner (though another disputed that assertion).

- **Metrics**: Quayside has been put forward as a test-bed for urban innovations. Given this, a key element for any proposal should be metrics: How will success be measured? What is the baseline against which this service is being compared? Is there a control condition? Without well-defined metrics, it will be

impossible to determine the success of individual technologies and systems, let alone of Quayside as a whole.

Associated with this is the question: What happens if the digital innovations don't work? What is the revert-to-normal plan, and what is "normal" in an advanced community? Again, this will have to be made clear for each proposed innovation.

- **Necessity and Proportionality**: It was flagged that the first question in Sidewalk Labs' RDUA relates to "beneficial purpose" – that is, whether there is a clear purpose and value to any proposed collection or use of data. However, this is only one side of the equation – a beneficial purpose must be weighed against potential or known negative impacts. It was recommended, then, that a necessity and proportionality test might be a more appropriate starting point for the RDUA (and/or the Intelligent Community Guidelines) [noting that these are two of the four elements of the privacy regulators in considering the appropriateness of a technology or service - the other two being Effectiveness and Minimization].

  Panelists were split on whether a digital governance framework (e.g. the Intelligent Community Guidelines) should include specific "no-go zones" (such as an outright ban on facial recognition and other forms of biometric capture), or whether a necessity and proportionality test would be effective while allowing for individual choice and/or democratic decision-making – particularly for technologies that impact individuals, rather than whole populations, and assuming appropriate transparency.

- **Sharing Information on Data and Security Breaches:** To support security and resiliency throughout Quayside (and the broader Canadian – and global – community), Waterfront Toronto may wish to consider mandating transparency around

the action taken in response to a security incident (in addition to the incident itself), to allow other organizations to take similar protective measures.

- **User Agreements**: Where a digital service relies on a user agreement, how will information related to data collection and use be communicated? How will user agreements related to in-home services – 'pay-as-you-go' waste disposal, unit-level energy monitoring, etc. – be enforced, and what is the consequence for non-compliance? Can users lose access to these services?

# Comments on Digital Innovations

In support of Waterfront Toronto's development of an Innovation Plan for Quayside, Panelists have offered the following preliminary comments divided into two categories: digital infrastructure and digitally-enabled services. As noted in the introduction to this paper, the absence of commentary on any proposal should not be understood as tacit approval.

**Digital Infrastructure**

For purposes of this report, digital infrastructure represents the four technologies set out in section 1.4 of the DIA: Super-PON, Software-Defined Networking, Koala standardized mounts, and the Distributed Verifiable Credentials.

Panelists recognize that each of these proposals have potential benefits. However, there was a general questioning of: (i) whether these infrastructural elementals are necessary or appropriate for this

project, especially given its 12-acre scope; and, (ii) whether the principal benefits from these largely experimental technologies would be accrued by Sidewalk Labs or its parent Alphabet, while potential costs (particularly in terms of any system failures) would be borne by residents and visitors to Quayside.

As noted by one Panelist, *"there will be more than enough [risks and technical "teething" problems] in getting the wide array of proposed digitally enabled services to work, without dealing with an unstable underlying infrastructure. A more prudent approach would be to plan on reliable, high quality digital infrastructure components while providing the opportunity for selective experimentation …."*

Lastly, some Panelists flagged that – similar to the "necessity and proportionality" vs. "beneficial purpose" discussion in the prior section – there is a continued tendency to focus on the potential benefits associated with a proposal, with no systematic discussion of any associated risks or costs.

Specific comments on each technology included:

- **Super-PON**: Panelists were generally unconvinced that this would provide any significant incremental value to residents and visitors to Quayside. However, they did not object to experimentation with this technology (now or in the future) by a telecommunications provider, so long as a reliable communications infrastructure was in place that met Waterfront Toronto's policy objectives.

- **Software-Defined Networking (SDN)**: Panelists recognized potential significant security benefits associated with SDN, but again questioned whether it should be considered separately from this project. It was also noted that SDN was designed to centralize network control, and to provide greater visibility into network activities – qualities that make great sense in an

enterprise context, but may create the risk of surveillance when deployed to individuals.

- **Koala Standardized Mounts**: Panelists were somewhat split on Koala mounts – for example, one felt that it represented a "bold bid to establish a new standard in a fragmented market", while another felt that "the benefits claimed … appear to be greatly exaggerated and poorly justified." Panelists were intrigued by many of the risk mitigations associated with the back-end of the Koala system (such as sensor authentication and monitoring), and wondered whether this capacity could be pursued regardless of whether the specific Koala mounts were deployed.

- **Distributed Verifiable Credentials**: While Panelists recognized the potential privacy benefits of this approach, they did not see how it fit within a project of this nature and scope. A national scope that includes financial institutions, governments and others is likely required to lead as the DIA describes.

**Digitally-Enabled Services**

With the exception of a significant discussion of the "surveillance load" potentially posed by Digitally-Enabled Services (covered in the next section of this report), Panelists comments in this area were fairly limited. They noted that it may, in fact, be premature for Panelists to provide a detailed review of the proposed services. Instead, the proposed service should first be evaluated "*by domain experts to assess whether it actually has the potential to achieve the outcome and whether there are policy or other non-digital urban innovations that can achieve the same (or better) outcomes.*" Furthermore, as noted above, a robust digital governance framework is a precondition for detailed assessment. Only with that context can the digital elements of each proposal be fully reviewed.

That said, it would be entirely reasonable to set out certain "must have" elements or features which any proposed service should meet before it would even be considered.

**Case Study: Pay-as-you-throw waste management**

Comment 81 of Appendix B is a thorough examination of a particular digitally-enabled service: "pay-as-you-go" waste management. While we will not recap the arguments made here - and Panelists have differing opinions on the ultimate conclusions made - it is instructive to consider the questions that are raised, as these are broadly applicable across digital solutions.

They include:

- Is the solution effective in meeting its objective - and how will this be measured?

- Does the proposed solution collect personal information beyond the *status quo* - even if only marginally so - thus increasing the overall surveillance load on individuals? (Alternatively, could it in fact *decrease* the surveillance load compared to the status quo?)

- The DIA sets out how data will be collected and made available - how will it be used? What are the potential impacts on individuals who are outside of a desired or expected range of usage or behaviours?

- Have non-digital, policy-based solutions been explored, or solutions which collect less data?

- Is it possible that the solution will disadvantage any group - particularly an already marginalized group?

- Where the service is governed by a user agreement, what are the terms of that agreement? How is it enforced, and what are the consequences for non-agreement or violation? Will the collection of personal information be opt-in or opt-out - and will options even be made available?

The intention behind asking these questions is not to condemn the "pay-as-you-throw" system, or any other digital technology. Rather, they are intended as a signal of the kind of rigour Panelists would expect to see in the consideration of a digital solution. This Panel is not opposed to digital solutions; it is simply arguing that for solutions to be found to support the public interest, a meaningful examination of all factors – benefits, risks, potential negative impacts, and alternatives - must take place in a transparent way.

# Economic and Ecosystem Development

Panelists offered comparatively limited comment on Section 3 of the DIA (*Growing the Canadian Urban Innovation Ecosystem*). The enhanced focus on ecosystem development – rather than job-related economic impact models was welcome, but Panelists expressed a need for further information about proposed measures – the scope of the patent pledge; the extent to which procurement will be transparent (and/or match public procurement standards); whether and how Canadian organizations would be educated about procurement processes; etc. – and their efficacy.

As is the case with digital innovations, the lack of defined measures was cause for concern. Economic development was a key objective within the Quayside RFP. Absent specific targets and on-going measurement programs, Waterfront Toronto and its government

partners will be unable to assess the success of the proposed measures and to take action to extend, amend, or replace them.

On specific proposals, some interest was expressed in the data collaboration hub, though noting that: (i) details of the hub need to be determined, likely with Waterfront Toronto leading in its digital governance role; and, (ii) the work to determine these details cannot be left to the last minute, and may be significantly challenging.

Panelists also had divergent views on the proposed Urban Innovation Institute ("UII"). Some saw the $10M in seed funding as a very positive suggestion, while others wondered if establishing a new institution would just divert money from research to administration. For example, it was noted that $10M could fully fund a Canada Excellence Research chair at an existing institution, while at the UII some of that money would presumably need to be set aside for administration and operations. Key to making this proposal worthwhile will be defining a mission and operational plan that differentiates the UII and warrants its creation as a new entity in this field.

# Accessibility

While multiple Panelists have flagged accessibility as an important consideration throughout this project, for this Report one Panelist has reviewed the Digital innovation Appendix with a specific focus on disability. This review is included as Appendix C.

# Partnership

For a number of Panelists, to provide Waterfront Toronto advice on digital strategy writ large - or of specific proposals - requires

consideration of potential proponents. Currently, Waterfront Toronto is considering a partnership with Sidewalk Labs - a subsidiary of Alphabet, and sibling to Google. This creates digital governance challenges that are not necessarily unique to this partner, but certainly to the handful of companies of their size, resources, and influence - including, but not limited to, questions around accountability, remedies, and enforcement, as well as more technical concerns such as data asymmetry.

Beyond this, some consideration must be given to the context and experience of this specific partner - both as they relate to this project, and to developments globally. One Panelist has set out his analysis of these considerations in Appendix D.

The DSAP recognizes that Waterfront Toronto has not requested comments from the Panel on this topic, and has a separate partnership evaluation stream. These comments are thus provided in support of that effort.

# Conclusion / Next Steps

As noted prior, the Panel is aware that, as of this writing, Waterfront Toronto is in the process of developing an Innovation Plan and a set of Intelligent Community Guidelines, and is working toward a Board vote on this project scheduled for May 20th. We hope that the insights provided in this Report are able to feed into each of these processes.

Looking to next steps, the DSAP is eager to see a number of key documents - including the Evaluation Report that we understand has been produced, as well as the aforementioned Innovation Plan - and once those have been made available, will seek to determine the most appropriate and effective way(s) of providing further advice and

review. Should the project proceed to this point, the Panel will also be available to advise on any Implementation Agreements relevant to its mandate.

Lastly, the Panel is also eager to work with Waterfront Toronto as it further develops out any digital governance materials, including but not limited to the Intelligent Community Guidelines.

# Appendix A – About the Digital Strategy Advisory Panel

Formed in 2018 by Waterfront Toronto, the Digital Strategy Advisory Panel (DSAP) is an arms-length body which advises Waterfront Toronto management on how best to incorporate data privacy, digital systems, and the safe and ethical use of new technologies in the next phase of waterfront revitalization.

The Panel provides Waterfront Toronto with objective, expert advice to ensure the following principles are addressed in a robust way that encourages socio-economic innovation and development, and preserves and promotes the public good:

- Ethical use of technology
- Accountability
- Transparency
- Protection of personal privacy
- Data governance
- Cybersecurity
- Benefits accrued from intellectual property and data are broad and equitable

**Members**

The Panel is composed of [13 members](#) who are recognized as leaders or experts in their respective fields, including Canadian and international subject matter specialists from academia, industry, the civic technology community and legal experts.

**Chair:** Michael Geist
**Vice-Chair:** Charles Finley

**Panelists:**
Andrew Clement
Khaled El-Emam
Karen Gomez
Kurtis McBride
Carlo Ratti
Diane Reynolds
Pamela Robinson
Teresa Scassa
Jutta Treviranus
Kevin Tuer
Mark Wilson

**Report Writing Working Group**

The drafting of this Commentary was led by a four-person Working Group: Andrew Clement, Charles Finley, Karen Gomez, and Mark Wilson. The Panelists thank this group for their efforts in creating this document.

Secretarial and production assistance for this Commentary was provided by Waterfront Toronto.

# Appendix B – Consolidation of Comments / Questions

The following is the complete list of comments provided by members of the Waterfront Toronto Digital Strategy Advisory Panel on available materials about the Quayside project, with a particular focus on the Digital Innovation Appendix.

Though they have been re-organized, these comments are included as initially provided by the Panelists (excepting minor edits for spelling/grammar and the removal of potentially identifiable information). Where a Panelist included a page reference within the DIA for a comment, that is included. Each comment is the opinion of its author, and not necessarily that of the Panel as a whole or of Waterfront Toronto.

# Table of Contents – Comments

# Overall Impressions

This section has 6 comments:

1. Overall, the DIA illustrates improvement over the MIDP.  I like the fact that we seem to be moving away from "building a city from the internet up" towards a concept that puts the individual at the core of the value proposition.

2. There is a welcome move to using digital in support of specific outcomes rather than digital leading. This means that for most of the proposed services it is not the digital elements of the technology that need to be evaluated by digital experts, but rather an evaluation must be done of the proposed service by domain experts to assess: (i) whether it actually has the potential to achieve the intended outcome; and, (ii) whether there are policy or other non-digital urban innovations can that achieve the same (or better) outcomes. Until the service passes this test a detailed evaluation of the digital service would seem to be premature. However, there are likely certain 'must have' principles that should be articulated in the Intelligent Community Guidelines which any proposed service should meet before it will even be considered.

3. I appreciate the additional detail of the DIA. Despite this being a "technical" document, it has allowed me to finally have a better understanding of the technology [Sidewalk Labs is] hoping to deploy and to see the case of how using specific technology could benefit cities and the challenges they face today. But are the right conditions in place for this type of experimentation?

The DIA is impressive, but that being said, the devil is in the detail. Key areas like SWL's procurement practices remain ambiguous, while at the same time SWL has positioned themselves to lead the majority of procurements. The case for what seems to be invasive technology isn't always clearly in the public's interest, and unless all levels of government engage in meaningful dialogue and action in data governance the implementation and the future of Quayside continue to be a question mark. How can it be allowed for SWL to begin the development process when the policy foundation to make Quayside a reality is currently being developed? All parties should consider pushing the deadlines to ensure there is a solid policy foundation.

Lastly, as other panelists have mentioned, it is great that SWL has made strong commitments to privacy and limit to data collection, but their parent company continues to have a presence in the project and leads to important questions. How can any level of government hold the parent company accountable in the event that commitments are broken?

4. While the DIA has responded to many of DSAP's comments in depth, it has far from alleviated all major questions about the proposed project. Sidewalk has clearly read our Preliminary Commentary closely as evidenced by the significant shift in tone and language from the MIDP. It is good to see that the DIA is noticeably more modest and realistic in its approach, even to the point of espousing the virtues of "digital restraint." While it isn't clear what this means in practice, this language is a welcome contrast to the digital "evangelism" more typical of companies born of Silicon Valley culture. Certainly the DIA provides an abundance of details, some more relevant than others, that helps reduce the "frustrating ambiguity" of the

MIDP. But a better grounded, focussed and argued document is needed for a rigourous assessment and to properly address DSAP's concerns.

The burden of proof rests with any project proponent to demonstrate the suitability of their plans. Welcome as the DIA is, it doesn't overcome the shortcomings of its precursor documents and in important respects reiterates them. Here are several of the reasons it falls short of providing an adequate basis for conducting a robust evaluation of Sidewalk's proposals, and certainly one that could confidently offer a positive assessment:

- It is not clear whether the text of the DIA is a sufficiently reliable indicator of Sidewalk's current ambitions, or likely behaviour if awarded the project. The shift in language toward a more modest, citizen centred approach to developing urban infrastructure and services is definitely in the right direction, but does it actually reflect a change in thinking and intent, or more superficially a change in presentation tuned to the expected audience? It is difficult to impute motives, but the latter interpretation would be more consistent with Sidewalk's usual aggressive techno-centric PR approaches, beginning with its foundational and still secret "Yellow Book" and exemplified recently in the MIDP (see also Appendix D). If Sidewalk wants us to read its intentions from the DIA more generously, it would be very helpful if it explicitly distanced itself from specific aspects of its prior statements it no longer believed in. The fact that Sidewalk's sudden apparent change of heart seems unlikely to have emerged spontaneously through its internal learning processes, but under the threat of Waterfront terminating the project by October 31, lends

further credence to a skeptical interpretation.

- Related to this is another significant issue - what is the status of the DIA within Sidewalk's overall proposal? Formally it is an appendix to the 'Draft' MIDP, a document that itself is of uncertain status. While the Threshold Issues Agreement of Oct 31 does restrict the scope of the MIDP, this is not enough to provide a clear delineation of what now remains of the Plan. The Oct 31 Agreement points to an Innovation Plan now under development that would supersede the MIDP+DIA in significant ways, but just how is not clear. The Innovation Plan has been referred to as mainly a "list" selected from the ~160 "urban innovations" mentioned in the DIA. But since such a list, regardless of how elaborated the description of each item is, cannot constitute a "plan" that can be approved, it must draw on the MIDP/DIA in ways that are yet to be clarified.

- Where the DIA does provide specific details about topics in the MIDP DSAP enquired about, the responses are often not particularly relevant to our evaluation because they don't address the key issues we raised (e.g. need for more specificity about overall lifecycle data flows, professional cost/benefit analysis, threat/risk assessment, street-level citizen perspectives, etc.). For example, much of the description of the Super-PON, Koala and other digital infrastructure proposals discussed in Sec 1.4, while interesting from a technical design point of view, shed little light on the issues that matter in our evaluation. Similarly, while the 96 page Section 4: Overview of Existing Policies and Approaches for Smart Cities and Digital Governance, provides a rich and

valuable resource for future 'smart city' development work, it offers absolutely no insight into how Sidewalk would proceed with the Quayside project. Indeed, coming this late in the process and scant reference to its content in either the MIDP or DIA it suggests that such a literature review was a post hoc effort and played little part in informing Sidewalks proposals. See comment #125.

- Sidewalk Lab responded at length to many of the questions DSAP posed in its Preliminary Commentary, they often fell short of providing adequate answers. In particular, among other topics, this was the case with the following:

  - UDT/RDUA/Data Governance – Data Localization (Preliminary Commentary, Comments 118 - 120)

  - UDT/RDUA/Data Governance – De-Identification/Data Protection (Preliminary Commentary, Comments 121 - 123, 125, 127)

  - Overall Impressions (Preliminary Commentary, Comments 137, 138, 140, 149 - 152, 158)

  - Contextual Considerations (Preliminary Commentary, Comments 159 -161)

While much less flamboyant than the MIDP, the DIA continues to give a strong flavour of PR document rather than sober and balanced planning proposal. The implications of this for the further evaluation and approval process include:

- tight specification of Sidewalk's commitments

- a robust enforcement regime with the capability of keeping a proponent as powerful as Sidewalk/Alphabet/Google in line with the public interest (See Appendix D).

5. Overall, there is an impressive level of detail in the DIA. Much of the repetitiveness from the MIDP is gone, which is good. Some of the concerns that arose with the MIDP continue to linger here, however.

   First, the data governance issues remain a concern. There is a lot thrown back at WT/City of Toronto. I'm not convinced they are fully ready to grapple with these issues.

   Second, some of the questionable projects that did not seem essential under the MIDP are back and still non-essential in my view. Of the four main digital technologies, only Koala seems directly related to the project and is not easily replaceable. There are some risks involved, but they seem worth taking. The others just don't seem to make such sense to me. Both SDN and Super-PON feel like solutions in search of a problem with limited incremental value here and little reason to think these are significantly better than other, better established solutions. Frankly, it feels like a testbed for Google on these ones.

   As for distributed verification, what does that have to do with this project? How is the scale of Quayside possibly enough for this to make sense? Why is this even in a development plan? Certainly not due to any Sidewalk expertise, which it admits:

   > "Sidewalk Labs would not build this technology, but instead would focus on understanding the space and

what a desired solution should look like."

Whatever that means.

Third, it feels like some issues that Sidewalk claims to be responsive on still makes its way into the DIA. The most obvious is the Urban Data Trust. We are told that is gone, but the DIA still says "exploring data trusts and other models of trusted data sharing remain a priority," then proceeds to give a bunch of data trust examples. This is also true about the expanded project scope and the discussion of Villiers West.

6. [DIA Reference: p. 66-69] [By way of illustrative example, the] chart on page 66-69 lists the data that will be collected as part of the Mobility as a Service Program.  I note that the aggregate data includes only the quantity of rides etc. that have been purchased collectively. De-identified info includes user account and balance information. Restricted personal information can include GPS location for more convenient trip planning, and there is also some personal information related to an app that users can opt into providing for "metrics and other benefits".  It seems to me that a service of this kind will necessarily collect data about the start and end point of different trips - and that this data would be very useful for transit planning purposes. Yet it doesn't seem to be included in any of the categories of data. I don't understand why not. Clearly, if such data is not aggregated it will have privacy implications, but it seems to me that it is potentially important and useful data. At the same time, it is hard to believe that service providers will not be collecting (and retaining) route data, but this is also not mentioned. So, this example raises questions for me about how transparent and comprehensive the DIA discussion really is when it relates to the data collected in relation to the different

projects.  A similar comment could be made about Public WiFi (p. 74). The type and quantity of information collected seems to me to be a subset of what is typically collected in relation to public WiFi.  Is this really the full picture?  How much is hidden in the "Users consent to User Agreements"?

# Digital Governance

**General**

This section has 6 comments:

7. [DIA Reference: multiple pages] There are a number of places in the DIA where there are important gaps resulting from the abandonment of the Urban Data Trust concept. While this was a flawed concept, the fact remains that if there is to be broad-scale data sharing, there needs to be some form of data governance that goes beyond simple open data.  The nature of the data governance scheme adopted will have an impact on many of the issues related to responsible and equitable data use.  I note as well that doing data governance for data sharing well - particularly in a complex context where there will be many different types and sources of data -- is a significant undertaking and may take a considerable amount of time to develop.

8. [DIA Reference: p. 5] The DIA states "the clear feedback was that a new standalone entity for these functions was not a preferred path for this project." This is misleading. The main objections to the UDT were that SWL was setting the terms when this should be done by WT, and that these terms did not comport well with public interest requirements. The idea of a

new digital stewardship body still has much merit, and should be part of the digital governance discussion. As noted, working this out will take considerable time.

9.  The single biggest outstanding issue for me revolves around governance, specifically, identifying a tighter boundary around what is considered governance and what is not.  I think the DIA still contains a lot of material that I would consider governance and thus should reside with Waterfront Toronto. For example:

> Should distributed verifiable credentials be considered part of governance?

> Is RDU a governance issue? Is SWL's RDU open source? That is, can anyone use it?

10.     [DIA Reference: p. 5] Who will develop the governance model?  The responsibility now resides with Waterfront Toronto.  Will a third party be contracted to develop the model in consultation with all relevant stakeholders?   At minimum, the boundaries of the governance model must be defined if for no other purpose than to clearly articulate the scope of SWL's contributions.

11.     [DIA Reference: p. 5] (Digital) governance is indeed the core and defining issue of the Quayside project. How it is addressed and resolved will have major ramifications - not only locally but, given the worldwide attention to the project, also for future 'smart city' initiatives across Canada and well beyond. It is vital to get this right. In addition to a clear delineation of an inclusive scope of governance issues in the proposal, a well-articulated and realistic process for addressing the governance issues will be necessary before the project can be given the go

ahead. WT's development of 'Intelligent Community Guidelines' (ICG) can certainly contribute to this, but it is still in the early stages and will need to be informed by the current 'smart city' policy development exercises all three levels of governments have recently initiated. Most relevant in terms of gaining governmental approval for actual urban building is the [Digital Infrastructure Plan](#) that the City of Toronto began conducting public consultations on in December. The staff report to City Council on the final plan is scheduled for late 2021. The ICG will presumably need to be consistent with the City's Digital Infrastructure Plan, and so by the most optimistic forecast, it can be completed no earlier than 2022. This implies any WT Board approval for the Quayside project to proceed will need to be contingent on the slowly emerging governance regime.

12.    The Waterfront Toronto Board should not approve the digital dimensions of the Quayside project until an appropriate democratically determined digital governance framework is established. DSAP will not be in a position to endorse Sidewalk's proposals until it has had an adequate opportunity to evaluate them in light of the framework.

**Governance Considerations**

*WT/DSAP Capacity*

This section has 3 comments:

13.    [DIA Reference: p. 40] As SWL has pointed out there will be increasing levels of detail of digital solutions that will need to be assessed at each phase should the project proceed. The level of effort that will be required is far beyond that which a quasi-volunteer part-time group such as DSAP could possibly

provide. While DSAP can provide high level guidance and commentary, specialized software and hardware engineering skills will be needed to deeply assess architecture, security, RDUAs etc.

In the same way that the DRP does not substitute for the various detailed and technical City of Toronto reviews noted on page 40 (Official Plan, Zoning By-Laws, Site Plan) DSAP review will not substitute for the additional technical review that is required. WT and the City will need to add / contract additional resources to provide effective oversight of digital development.

I also note that the City has a Building Inspection process that goes on after the project is approved and while it is under construction to ensure compliance. This will also be required for the digital components as will ongoing oversight and monitoring. Building modifications require application for building permits which trigger another round of technical review and inspection which the RDUA process also contemplates. Additional resources will also be required to provide this oversight.

14.     Does WT have adequate organizational capacity to oversee the Quayside project?

For an organization whose primary mandate and experience is in the area of real estate development, grappling with the complex technical and policy issues raised by a 'smart/intelligent/digital/networked..' urban innovation project presents formidable challenges. This is especially important as Waterfront is now more prominently playing the leading intermediary role in the area of digital governance. To its credit Waterfront has already recognized this to a degree, by among

other steps establishing the DSAP, hiring an experienced privacy/information access expert and retaining legal counsel with expertise in some of the many new areas involved. However, if the Quayside project goes ahead with the digital features currently envisioned, Waterfront will need to greatly expand its capacity across multiple areas if it is to effectively advance the public interest. Overseeing the activities of a contractor as ambitious, rambunctious and powerful actor as Sidewalk/Alphabet, will be especially demanding. This will not only mean hiring more people with the requisite expertise but by also re-imagining the nature of the organization at the senior management and board levels. This recent statement by the Board Chair, who "likened data collection at the Sidewalk Labs project to the 407 toll highway in Toronto, which scans license plates to bill drivers," if accurately reported by the Financial Post (Jan 13, 2020), is not encouraging in this respect. The scale, intimacy and diversity of the data collection, analysis, storage, and use processes projected in the Quayside project qualitatively outstrips highway toll collection by a wide margin. The complexity of digital proposals and the ongoing wide-ranging controversies they have elicited should now alert Waterfront's leadership that they are now operating in a very different world.

15.     [DIA Reference: p. 35] Sidewalk Labs plans to provide digital planning materials within the development application process: "In an effort to provide clarity and transparency … SWL is planning to prepare additional materials as part of the development application process."

Please firmly direct them NOT TO PREPARE ADDITIONAL MATERIALS yet. Waterfront Toronto and the City need to work together to sort what a digital master planning process looks

like. Once this process is framed then and only then should SWL engage. At times in this process it has been difficult to disentangle building a digital governance ecosystem from reacting to and evaluating SWL submissions. Because Quayside is the first big project of this sort in Toronto at times I worry we are conflating the need for process with having it all speak only to this project. The absence of proper digital master planning process is not an invitation to SWL to build one. The Quayside is a mirror back on the need for a comprehensive digital governance (and master planning) process. But whatever process is developed for urban technology development design and approval, it needs to be vendor agnostic. There is a democratic process void that continues to pervade this planning process and it needs to be filled by government.

This situation is further made complicated by this governance asymmetry between SWL's much deeper R&D and report writing/printing capacity/budget and the capacity of those on the receiving end does not lend itself to thorough review.  With the MIDP and now the DIA the significant volume of material provided is like an information tsunami. The absence of DSAP's direct commentary on an item/idea should not be taken as tacit approval or consent.

*Community Engagement*

This section has 3 comments:

16.      The integration of Digital with traditional Development Approval processes is a welcome innovation and one that I would hope the City adopts as part of its work. However, given the Innovative nature of the services that are being proposed

and the recognized benefit of an iterative collaborative process with deep community engagement more is needed for the Quayside project. I suggest that any Implementation Agreements for the new services lay out a specific program for that process.

17.     [DIA Reference: p. 304] On [Page 304], it is stated that "Historically, far too often, only a small non-representative group has shown up to formal public meetings." This was a concern I raised in the last meeting that I wanted to amplify again.  Good public engagement is at the core of a successful strategy.

18.     [DIA Reference: p. 301] Sidewalk has proudly claimed from the beginning of the project that its proposals would be grounded in an inclusive and participatory planning and co-design process. It articulates core ideals of participatory design (PD) clearly, such as:

> A co-creative, participatory design process must start with identifying problems, not solutions. It is insufficient to have already developed a solution and then solicit feedback from diverse groups on that solution. Design must be "with" and not "for" the eventual users and stakeholders of a solution. (p. 301)

Furthermore, it has demonstrated a strong grasp of the key principles of PD, such as iterative prototyping, and has evidently put these into practice in several settings to good effect (pp. 304-334).  However, when we stand back to assess the project as a whole, there are some grounds for skepticism. There is substantial evidence that Sidewalk's commitment to co-design is shallow, and largely confined so far to interface and user-

experience issues well embedded within a wider project structure that Sidewalk has unilaterally shaped by a very different design approach - one that is deeply at odds with its proclaimed design ideals and commitments to such principles as transparency and public benefit.

The most prominent indication of the discrepancy between espoused and enacted adherence to the ideals of co-design can be seen from a cursory inspection of the visually impressive MIDP document itself. Major sections of the draft Plan are devoted to vividly illustrated visions for tracts of land much larger and well outside the 12 acres of the Quayside area delineated in the RFP without apparent sanction. Far from developing its plans transparently in collaboration with its 'partner', Waterfront Toronto, Sidewalk pursued its own interests so opaquely that when it presented the draft MIDP in June, Waterfront Toronto's Board Chair immediately scolded Sidewalk for its "aggressive" approach and threatened to halt the project if it did not scale the scope back to that originally agreed upon. Sidewalk has yet to apologize publicly for betraying the relationship and wasting so much time.

Sidewalks original vision document from October 2017 offered an ambitious program of 'public engagement.' To fulfill its promise to "co-design" the plans for Quayside with Torontonians, Sidewalk soon thereafter, but without prior public consultation, published its multi-faceted public engagement plan, consisting of 13 distinct programs. It also opened a showcase/workspace at 307 Lakeshore. The MIDP celebrates the achievements of its "robust public engagement process", citing an "unprecedented level of preliminary public input — reaching more than 21,000 Torontonians in person to date — helped shape the plan." [MIDP, Vol 0 – Overview, p. 66]

To test this bold claim I conducted a preliminary investigation of Sidewalk's public engagement activities. I report the findings of this exploratory study in, ["Pseudo-participation in 'smart city' planning? The case of Sidewalk Toronto,"](#) and provide here a brief summary.

Based loosely on a review of conventional civic consultation and PD frameworks as well as those more specifically oriented to digital urbanism, notably the *Declaration of Cities Coalition for Digital Rights,* which the City of Toronto has adopted, and the  smart city manifesto in Mosco's *The Smart City in a Digital World* (2019), I proposed the following provisional set of 8 principles for evaluating and guiding the civic participation aspects of large-scale smart city initiatives such as Sidewalk Toronto:

1. **Inclusive** of all interested parties
2. **Comprehensive** in scope, addressing all key aspects of the project
3. **Extensive**, providing sufficient time for civic participation at the beginning and throughout the project
4. **Independent**, arms-length from the main proponents
5. **Iterative**, to promote mutual learning
6. **Publicly transparent**, so that everyone can observe who is doing what and why
7. **Democratically accountable**, so all significant contributions are responded to, whether reflected in the final outcome or not
8. **Effective** in shaping the outcome to the benefit of

citizen participants

Focusing on the most substantive and best documented of Sidewalk's public engagement programs: 4 *Public Roundtables*, a 36 person *Residents Reference Panel*; and the *Sidewalk Toronto Fellows* program, I assigned Sidewalk's efforts a rating of *Good, Fair* or *Poor* for each of the 8 criteria. Here are my results:

| | |
|---|---|
| *Good (1):* | #1 inclusion |
| *Fair (2):* | #4 independent, #5 iterative |
| *Poor (5):* | #2 comprehensive, #3 extensive, #6 publicly transparent, #7 democratically accountable, #8 effective |

This exploratory analysis strongly suggests that Sidewalk does not measure up to the principles of civic participation outlined above. A project proponent bears the onus to provide good evidence of effective participation sufficient to warrant claims of public endorsement of its planning. In this case Sidewalk's public engagement program appears more oriented to winning approval for its own ambitious plans than to conducting a genuine co-design process through which Torontonians could exercise their collective civic power and agency. Sidewalk has deployed the language of participation on a project-wide basis, but confined its substantive participatory practices to relatively narrow aspects of implementation. In effect this serves to undermine democratic ideals rather than bolster them. Based on this analysis, Sidewalk's public engagement programs can be better characterized as "pseudo-participation" rather than "authentic," to use Midgely's

terminology.

*Consent / User Agreements*

This section has 3 comments:

19.        [DIA Reference: p. 43] Is explicit consent synonymous with opt-in consent? Should there be limits on certain information that cannot be collected? Cannot be used or disclosed? Specific uses off-limits?

20.        [DIA Reference: p. 251, 255] If data is de-identified at source, why is consent, implied or otherwise, required?

*RESPONSE FROM DSAP PANELIST*: Consent would be required because de-identification is by definition a process performed on 'personal data', which enjoy the legislated rights and protections. De-identification at source may provide protection, but the rights are not extinguished, even after de-identification.

21.        [DIA Reference: p. 103 and others] I want to make general comments about user agreements. The DIA makes multiple references to metering, subscription, or other services that will require user agreements, and that will result in the collection of personal information. Since no details are provided about these user agreements, these agreements are a matter of concern to me. Not only might the agreements contain important information about how personal information will be handled, the circumstances under which it will be shared with law enforcement, and other matters relevant to privacy, user agreements are contracts that can include other terms and conditions that could raise significant concern. For example, on page 103 there is a reference to the user agreement for waste

services. What if the user agreement contains contractual rules about what can or cannot be included in trash? What are the consequences of breach of these rules? Can tenants lose access to waste services? Will they face fines or penalties imposed by the building operator? Will breaches be reported to authorities in some circumstances?

Another question with respect to user agreements for basic services in residential buildings - how will these user agreements be reconciled with landlord-tenant legislation? What impact will they have on shifting the balance of rights between landlord and tenant?

*ADDITION FROM DSAP PANELIST*: Will opt-in or opt-out be the default, for data collection, for further use?

*Data Breaches*

This section has 3 comments:

22.      [DIA Reference: p. 189/190] Related to Data Breaches, although not called out specifically in the Draft Digital Principles, should there be a mandate to share fixes related to privacy and/or data breaches in an effort to build a more resilient province, country and world?

23.      [DIA Reference: p. 293] Data security - the threshold for mandatory breach reporting is correct. However, there is also a requirement to keep a record of all breaches -- even those that do not meet this threshold (s. 10.3) This latter requirement is not mentioned in the RDUA guidance document.

24.     In the MIDP it was commented that SWL needed to make a commitment from the start to residents of Quayside in the event of a breach. Their response to that comment was to outline their robust approach to security, and the DIA offers further insights on how they are taking preventative measures to minimize the impact of any potential breaches. The problem is, SWL is trying to change how people live. Residents, as self-selecting as they may be, are putting their trust on SWLs and WT. As such, an equally robust plan should be created to make tangible commitments to residents in the event of a breach.

*Data Ownership*

This section has 1 comment:

25.     [DIA Reference: p. 256/257] These pages talk about custody of data and contractual control over data.  Who actually owns the data?  Does ownership supersede custody and contractual control? Both custody and contractual control could imply ownership but I'm not sure that is the intent.

*Data Residency / Local Routing*

This section has 3 comments:

26.     [DIA Reference: p. 189] To build on data residency, perhaps we should borrow a page from open data to tighten up the language and adopt "data resident in Canada by default" approach.  That is, any net new data that is created must be stored in Canada by default and a case must then be made to have the data hosted elsewhere.  Places the burden on those that want to store the data anywhere other than Canada.

27.	I note that the data for the Numina pilot will not be stored in Canada but in the US due to the lack of a second AWS region in Canada. There are 2 availability zones in the Canada region which protects against single zone failure.

This sets an unfortunate precedent. Surely a 3-camera pilot for counting movement does not require multi-region redundancy. Even a full-scale production application that just counts movements could suffer the modest data loss of a few hours data in the event of region failure.

There needs to be a definition of mission criticality that should govern this decision.  In all of my commercial experience, enterprises always classified applications into different tiers depending on their criticality.

Here is a link to a Nov 2018 article detailing AWS failures which have occured but seem to have been resolved in hours not days: [https://www.datacenterknowledge.com/amazon/aws-says-it-s-never-seen-whole-data-center-go-down](https://www.datacenterknowledge.com/amazon/aws-says-it-s-never-seen-whole-data-center-go-down)

28.	The principle of Canadian data residency should apply not only to its storage but also to its transmission. Data stored or routed through the US loses Canadian protections and is treated as foreign. All data in transit is subject to NSA mass surveillance at the main obligatory internet switching centres.

For more on the routing of Canadian *domestic* internet traffic via the US (aka "boomerang" routing) and its policy implications, see [IXmaps.ca](IXmaps.ca)

*Definitions*

This section has 5 comments:

29. [Responsible Data Use | p. 289] Sensitive data - this section defines sensitive data as data "that is used to analyze or make decisions based on…" certain factors. I would define sensitive data as data that is about those factors.  (I.e., the data is inherently sensitive; its uses may also raise issues, but that is a separate consideration). This may seem like a quibble, but there are obligations with respect to sensitive data that involve the legitimacy of its very collection, as well as, for example, the security safeguards required for its storage. These are quite distinct from issues of use.

    The discussion of historical data and historical biases focuses on personal data and PIPEDA, although I would note that biased historical data can also involve non-personal data that is not subject to PIPEDA.

30. [DIA Reference: p. 49] The four types of data listed overlap in ambiguous ways that are problematic and need to be clarified. For example, *aggregated data* is not a separate category as it can be derived from either non-personal or personal data, each requiring different authorizations. Whereas determining the number of people in an office space by counting anonymously the number of warm bodies that have passed through the door can be considered a non-personal aggregate, accessing the log of individual IDs of those who scanned their cards to enter the room to create an aggregate count can be viewed as a *use* of that personal data and hence

would need a legitimate purpose, notice, consent and a host of other requirements depending on the relevant data protection regime.

A similar argument applies to *de-identified data* - it is a sub-category of personal data, since the de-identification is a *use* of personal data, even if was sufficiently robustly de-identified to foil re-identification efforts, including when combined with other data sets (a really high bar), such data protection rights as need for informed consent, purpose specification, accountable authority, openness, among others, would still be retained. While de-identification can help protect personal information it does not remove it from Canada's data protection regimes or beyond the oversight of a privacy commissioner.

Much else in the DIA and MIDP depends on this 4-part categorization scheme, so with its collapse, further use of these categories is not reliable. This scheme needs re-thinking and proposals that draw on these categories need to be revised correspondingly.

31.     Statements about whether de-identified data falls under the jurisdiction of Canadian privacy law can be challenged. De-identified data is not personal information and therefore falls outside privacy regulations. That is the whole point of having privacy laws apply to personal information. Of course, the data must be de-identified well and using best practices. But the point remains – this is how it is today. The same reasoning applies to other privacy laws in other jurisdictions, such as in the US and Europe. Now, regulators and others may want to ensure that de-identified data is not used in a discriminatory or biased way, for example, and can make the case for best practices on governance and responsible uses of data, and

these should be followed – but that Is not a legal requirement.

32.     I think the argument that de-identification is a (non-permitted) use can be challenged. It is not consistent with current practices, there have been no explicit statements from regulators to that effect, and it is inconsistent with specific laws. For example, under certain laws in Canada, such as PHIPA, the act of de-identification is a permitted use. In other jurisdictions across the country it is treated as a permitted use or a non-use in practice. Otherwise, no one would really be de-identifying data anymore since if it is necessary to get consent for de-identification, a data processor might as well get consent for the actual processing and avoid reducing the utility of the data by de-identification. The incentives would not be there to de-identify data and no one would want to incur the costs of de-identification. Which is much worse for data subjects because now more of their personal information would be used and disclosed rather than their de-identified data.

The whole point of de-identification is to remove the obligations on the data consumer that are necessary when processing personal data. If de-identified data is going to be treated in the same way as personal data with no reduction in obligations then there is limited point in de-identification and the costs of de-identification. De-identified data is not personal information and therefore the obligations for processing personal data would not apply to it.

33.     [DIA Reference: p. 291] De-identification - the test for "identifiable individual" that is presented on page 291 is neither that from the Pascoe case (Ontario public sector) or the Gordon case (ATIA, but adopted by the OPC for use under PIPEDA). Just a minor quibble, but the actual tests are slightly more nuanced.

*Enforcement / Enforceability*

This section has 2 comments:

34.　　[DIA Reference: p. 43] SWL has made important commitments on their use of data:

1. Sidewalk Labs will not sell personal information.
2. Sidewalk Labs will not use personal information for advertising.
3. Sidewalk Labs will not share personal information with third parties, including other Alphabet companies, without explicit consent. (NOTE this does not cover non-personal information)

Enforceability and remedies for breach are not easy to develop for an Alphabet company. Certainly, protections against corporate restructuring and parental guarantees need to be in place.

Additionally, traditional financial incentives / penalties may not be enough. As far as I can tell Google's total EU antitrust bill now stands at €8.2 billion. There has been some impact for these fines as this article reports. Perhaps personal liability of SWL officers is an approach to be considered. https://www.theverge.com/2019/3/20/18270891/google-eu-antitrust-fine-adsense-advertising

35.　　[DIA Reference: p. 196] I want to start by indicating that I like the concept of a responsible data use policy and assessment mechanism. However, the only way that the RDUA will have any teeth is if there is a clear and executable enforcement strategy complete with a penalty structure. This needs to be articulated in more detail.

*Facial Recognition*

This section has 2 comments:

36.  [DIA Reference: p. 43] "0 subsystems planned to use facial recognition." This leaves open the possibility of FR at a later stage. There should be a commitment to not use facial recognition in public and quasi-public spaces.

37.  There is much reasonable anxiety about facial recognition technology in the public realm and some bans have occurred. I do not believe that determining its use is or ban should be an SWL matter.

The DIA proposes that all operational oversight for Public Realm should be 'Public: Govt; OR Non-Profit'.  The DIA further proposes that the procurement lead for Public Realm would be Waterfront Toronto other than Parliament Plaza and Parliament Slip which may or may not be the final decision. Regardless of who is doing procurement the public sector must set the parameters for Public Realm including in regards to facial recognition. China is certainly setting a global example for highly intrusive facial recognition applications in the public realm which gives reasonable cause for caution

That said, I am not in favour of an outright ban. It is surprising how quickly people have adopted facial recognition as a preferred way to unlock their smartphone. We should remain open to assessing potential applications based on beneficial purpose or perhaps necessity and proportionality as suggested elsewhere. For example, in a world of amber alerts where a child's picture as well as that of a fugitive are posted online or broadcast on television, I could envision proposals coming

forward to enable facial recognition for that specific purpose. That capability is essentially already deployed in some Chinese cities.

I also am unclear on what 'quasi-public spaces' means [in the prior comment]. If it is a condo lobby then the condo corp might choose to install a facial recognition system as an alternative to badges and key fobs as a next step past smartphone unlocking. That would be their decision to make.

The proposed Stoa is a different matter. Although it may be privately owned it is in general use by the public and any application of facial recognition would need serious scrutiny.

*Indirect Collection*

This section has 1 comment:

38.      I note that the entire RDUA and guidance document seem to assume that all data used will be collected directly from individuals.  I would assume that in some cases, AI will be trained on data acquired in other contexts and from other sources, or that data collected directly from individuals may be combined with data acquired from other sources.  Is there some process for assessing the quality/suitability/ethical nature of data acquired from other sources?

*Law Enforcement Access*

This section has 2 comments:

39.      [DIA Reference: p. 286-87] RDUA Guide and Reference - In the section on data disclosures I note that no mention is made

of the issue of data disclosures to law enforcement/national security, third party organizations for investigative purposes, etc. I would want to know what SWL policy is on these disclosures: what data will be shared without a warrant/court order? In what circumstances? What commitment to transparency about law enforcement requests will SWL make?

40.     As has been stated elsewhere public security agency and police access to data are not discussed at all in the document. This should be a matter for Waterfront Toronto to document in its Intelligent Community Guidelines for SWL and all others to conform to. The assumption seems to be that any Police surveillance systems such as red-light cameras or video cameras are separate systems. It is not clear if they could take advantage of proposed infrastructure such as Koala if they chose to do so.

*Necessity and Proportionality (& no-go zones)*

This section has 2 comments:

41.     [DIA Reference: p. 226] The first question in the RDUA relates to beneficial purpose. It asks whether there is a "clear purpose and value to any proposed use of data" as well as a clear connection to benefits to individuals or the community. However, as I noted with some of my comments about specific technologies in the previous sections, while there may be a clear purpose and value to proposed uses of data, there may also be negative impacts and effects that outweigh these values. I wonder whether a necessity/proportionality test might be a better starting point. Certainly, in the public sector context (when we are talking about, for example, data collection for public services/programs) necessity and proportionality are

guiding considerations. Do the benefits of suite level electricity metering outweigh the potential harms?  In my view, this is a better question to ask.

If you look at the RDUA/PIA comparison that starts on page 232, you will see that necessity/proportionality is not part of the RDUA - these fundamental questions never get asked. Where data is collected in relation to core services (energy, water, waste, etc.) then surely necessity and proportionality must guide data collection?

I note that the RDUA doesn't seem to recognize any no-go zones for data collection or use. Should there be some?

Should there be some basic, fundamental principles, for example, around mandatory data collection related to one's living space? In other words, should there be a maximum surveillance load for individual living space as a matter of public policy?

42.      I support the above comments regarding necessity and proportionality.

The 'no-go' zones I find more problematic. Individuals have very different preferences and attitudes to what data they are prepared to provide in return for services they wish to access. Some individuals are installing Alexas, baby monitoring devices, video cameras for remote monitoring of aged parents (as well as their teenagers and babysitters), motion detectors for security services, and many other surveillance-like devices in their homes. Others are shunning them.

Uses such as a landlord placing video cameras or other devices

to monitor tenants inside their units would I hope violate existing privacy legislation / regulation but my legal colleagues would be best to comment on that. If existing legislation / regulation does not cover this, or if it does not offer adequate remedies then government action is needed.

Different condos have different schemes for what is included in maintenance fees and what is monitored at the unit level and billed on a usage basis. With the ongoing development of co-living spaces this will get even more complicated as to what exactly is one's 'living space'.

Certainly, clarity and transparency prior to any tenancy or purchase are mandatory so there is an informed choice as to whether someone wishes to live in that community with those services and rules. More than that makes me concerned about government interference in private decisions.

The usage of data that is collected should be a matter of public policy (and legislation) so that it is only used for the stated purposes. As well as liability and right of action for misuse or breach.

I do recognize that the current state of online data gathering involves significant misuse of data for purposes other than stated, that quasi-monopolistic services offer little choice to users other than to surrender whatever data is asked for in order to obtain those services, and that there is justifiable anxiety about those practices penetrating deeper into cities.

*Open/Shared Data*

This section has 2 comments:

43.     [DIA Reference: p. 252-254] The "RDUA in practice" document (pp. 251-269) demonstrates how the section on "secondary purposes" operates. The party proposing to collect the data must indicate the purpose of collection as well as any secondary purposes. In the example provided, it states that "There are no secondary purposes with respect to the data collected in this pilot". But the same document indicates that the collected data "will be made publicly available in some format". So, while SWL may not use the data for secondary purposes, the data will be available to others to use for who knows what purposes. It seems to me that the "secondary purposes" category of evaluation is meaningless (and/or misleading) if the data will be shared with others, as open data or otherwise, for other purposes. If the data is shared through some form of data governance body, this might be addressed in that process, but if it is made available as open data, then it is open to all manner of secondary uses.

I'm also not sure how to reconcile the data retention promise of 5 years only, if the data is to be released as open data.

44.     [DIA Reference: p. 288] Publicly available - SWL indicates that it is committed to non-personally identifiable data being publicly accessible by default. I would like some more clarification of this. Does it mean open data? Or data governed by an entity set up to oversee data sharing (or one or the other depending on the circumstances). When is open data appropriate? When is more controlled sharing appropriate? I realize that some of this might fall to be determined by the data governance scheme that Waterfront may now be committed to developing - but these are important questions and there should be some sense of the answers going into this project.

If personal information is not made available by default, what about aggregate or de-identified data? What protocols will be in place to ensure that data is properly deidentified? Again, this may be for the data governance body, but this highlights the need for movement in this area.

I note that this commitment talks about publicly accessible by default with the exclusion of personal data - but presumably confidential commercial information will also be excluded. How will this be determined? Who gets to decide what information is commercially sensitive or confidential? Does anyone get to review such determinations?  This is potentially a huge loophole in the data sharing commitment. What role, if any, will any data governance body have in overseeing decisions about what data should be shared?

*Transparency*

This section has 5 comments:

45.     [DIA Reference: p. 197] I found the diagrams and analysis of existing conditions in Toronto today both informative and disturbing.  Informative in the fact that it provides some insight into the proliferation of sensors in the city already.  Disturbing given that for many of the identified sensors the purpose is unknown. I recommend that another column be added to capture who the owners of these sensors are. Regardless of how easy or difficult it is to complete this table, the proposed approach must fix these problems, specifically, knowledge of the sensor's purpose and ownership.

46.    One more field that could be added to the information set about deployed sensors includes the opportunity to use data from that sensor for other applications to reduce sensor clutter. No sense having more than 1 sensor collecting the same data.

47.    Perhaps, SWL should create a digitally enabled service that allows individuals to use their phone to point at a sensor and get information about that sensor immediately.  I believe SWL suggested scanning a QR code for the same purpose elsewhere in the document (pg 315).

48.    [DIA Reference: p. 475] Further to a previous comment I made about identifying sensors, we should also create an IoT registry. If only for the reasons that Amsterdam created it: "to eliminate the duplication of data collection [and sensor clutter] and provide a back door to data sharing among entrepreneurs".

49.    [DIA Reference: p. 236] SWL states that it currently publishes online summary RDUAs for product and pilot launches for transparency.  Will there be a requirement that at least a non-confidential summary of <u>every</u> RDUA be published online?

**Metrics and Operations**

This section has 3 comments:

50.    Many of the services could be described as 'experiments' or more charitably as 'pilots', whether the Smart Curb or the various energy and waste management systems. This means that it is essential to have a phased implementation program from Proof of Concept in a lab environment to pilot on a small scale (building, street, unit as appropriate before committing to

wider deployment. Some systems may only be feasible on a larger or even precinct scale in which case there must be clear plans and funding to replace and retrofit in the event of failure.

For each phase specific metrics need to be in place for each service and subcomponents both for service levels and to measure success against baselines. Without success measures there is no way to determine whether to proceed to the next phase. Although Objectives are articulated for services in the DIA, in general these specific metrics are absent from the DIA, although there may be some scattered through the MIDP and other Technical Appendices.

51.     This leads to me to a view that overall project governance will be very different for Quayside than what Waterfront Toronto has used for previous developments.

As the project is challenge based, a different kind of governance is needed to monitor progress towards specific outcomes / high level goals and to adjust strategies and tactics as the project proceeds. This is not just a simple matter of did you implement the plan that we contracted for.

A few examples:
1. The results of the proposed innovations are uncertain, and some specific innovations will likely need to be abandoned or replaced
2. New technologies and policies will emerge and will need to be incorporated. We have already seen this in the new digital electricity proposals and the proposal for self-driving trash bins.
3. Growing the urban innovation ecosystem is a goal that is not part of a traditional development agreement

I suggest a public annual report card and public forum for Waterfront Toronto to report against the goals with successes, failures, new initiatives.

SWL has shown interest in the MIDP in performance payments based on achieving Waterfront Toronto mandated goals and this is a commercial approach worth pursuing. In addition to performance payments for exceeding goals by targeted amounts, performance penalties for failure to meet minimum goals should also be considered.

52.     [DIA Reference: p. 22, general] Critical topics in digital governance and technology - what about maintenance? What happens if the Digital Innovations don't work. Who owns them? Who has to pay to rip them out and then put in something new? How is replacement designed in and budgeted for? The moveable pavers and utility corridors have access issues built in but what other plans are there? Is there a 'revert to normal' plan B? Perhaps some of this thinking is reflected in the position of Level 2 detail discussion (page 38) but I'm looking for more robust discussion throughout and high order principles too.

There is an interesting parallel with pits and quarries in Ontario (Aggregate Resources Act). When the extraction activities are completed there are often legacy costs for government and sometimes private firms and significant ecological legacies. Extraction firms are required to remediate sites when the extraction is finished but oftentimes the remediation plans are ecologically and aesthetically insufficient. The lessons to be learned here are: the full site lifecycle costs need to be anticipated and a strong legal framework is needed to define

base expectations to ensure effective response. What consideration has been given to "state of good repair" standards for maintenance and furthermore what is the baseline urban condition to which things need be to restored when some of the experimental technology does not work as planned?

*DSAP PANELIST ADDITION*: I agree with this note, which was specifically mentioned in previous DSAP comments but not addressed.

**Other**

This section has 10 comments:

53. [DIA Reference: p. 44] What is digital restraint?

54. [DIA Reference: p. 225] Given that governance is now Waterfront Toronto's responsibility, how will SWL use its Data Governance Advisory Working Group? Will it be disbanded? *[ED: It was disbanded prior to the delivery of the MIDP.]*

   *DSAP PANELIST ADDITION*: The referenced working group was disbanded prior to the delivery of the MIDP.

   *DSAP PANELIST FOLLOW-UP*: Does SWL still have its "community leaders" advisory panel - the one whose membership has not been publicly shared? If yes, what role it is playing and will its membership be made public?

55. [DIA Reference: p. 226] Does a proposal being evaluated through the RDUA process have to pass each section to be

approved?  For instance, if the proposed beneficial purpose is rejected, is the application rejected in its entirety?

56.    [DIA Reference: p. 369] "[E]stablishing the Urban Data Trust as a new entity for this project is no longer being pursued. However, exploring data trusts and other models of trusted data sharing remain a priority." I don't understand how to reconcile this.

57.    [DIA Reference: p. 43] The "governance committee" (or whoever/whatever is tapped to take on this role) must play a role in the evaluation and execution of the proposed Digitally Enabled Services. Each must have governance elements embedded within them.

58.    [DIA Reference: p. 43] An extensive literature survey or ecosystem scan should be a mandatory element of each proposed digitally enabled service.

59.    [DIA Reference: p. 172] At the present time, who or what organization defines how much data a service is allowed to collect?  Is it backed by legislation?  Will this be applicable to the RDUA process?

60.    Provision of the actual Numina RDUA is very helpful as it enables the very detailed and specific scrutiny that others have provided. Presumably Waterfront Toronto has also engaged its legal advisors to review/ scrutinize the RDUA. That scrutiny can help inform the actual Intelligent Community Guidelines that would be used to assess RDUAs. To that end an RDUA that collected personal information would be even more useful as a sample.

61.     [DIA Reference: p. 43] Sidewalk's 3 commitments regarding data use leave important potential loopholes, and need to be strengthened. An underlying and more fundamental concern about selling personal data is that it is being monetized without appropriate oversight. Big data enterprises typically monetize personal data not by selling it directly but by creating profiles (e.g. market segments) based on the data they control and then selling these profiles as well as the attention of those who fit these profiles. Furthermore, these commitments should apply to all Alphabet affiliated enterprises. So a more concise and comprehensive version could read:

> "No Alphabet enterprise will monetize personal information and its derivatives, nor share these with third parties, without appropriate authorization."

The MIDP/DIA is silent on the role that personal information collected from external sources will play in Quayside services. One potential example would be Sidewalk using the locational data that Google routinely collects from Android devices, its Maps app or telecom carriers in its mobility services (e.g. assessing traffic congestion as Google Maps currently does). To address this issue, a further commitment is needed, along these lines:

> "No Alphabet enterprise will use personal information collected outside Quayside, or any derivatives, in Quayside services, without appropriate authorization."

62.     WiFi in a city is vital for navigation and for information. Coffee Shops, Libraries, and public spaces are havens for all when there is open WiFi. Similarly many communities who are disproportionately surveilled will be wary of the heavy

surveillance load.

So, what does this mean for Quayside? Will it be a digitally gated community in some aspects? I am not sure, this is something for WT and the City to consider.

It would be interesting to see SWL or WT imagine what essential public infrastructure looks like and find a different way of providing it without "tax". If Quayside wanted to be truly innovative it might have free, abundant and publicly accessible: drinking water, shade/warmth, wifi, bathrooms - all available to anyone without having to share data or pay.

# Innovations

**General**

This section has 5 comments:

63.　　All four of Sidewalk's proposed digital infrastructure components (Koala, SDNs, Super-PON, distributed credentials) offer innovative and promising infrastructural possibilities. However, none of them presently appear sufficiently established to depend on in the initial stages of Quayside development. While it is clear that Google/Alphabet would enjoy considerable benefits from testing them in real-life operations before wider deployment, any significant benefits to Torontonians are at best uncertain and accrue only in the long term. The risks are high and the technical teething problems will be borne relatively immediately. There will be more than enough of these in getting the wide array of proposed digitally enabled services to work properly, without dealing with an unstable underlying infrastructure. A more prudent approach

would be to plan on reliable, established, high quality digital infrastructure components while providing the opportunity for selective experimentation through generous provisioning of conduit dimensions and abundant access points.

This unbalanced approach is characteristic of the MIDP/DIA more generally, which is almost entirely devoted to promoting the prospective pros without addressing the possible cons of its many proposals. The hard selling of glittery "solutions" is far from uncommon in the fast moving and competitive tech industry, but it undermines the credibility of an enterprise that seeks to provide infrastructure that needs to be trustworthy. [Google Fibre's abrupt pullout from Louisville KY](#) when its innovative technology, much simpler than proposed for Quayside, didn't work as hoped provides a cautionary lesson. As Google Fiber itself wrote, "innovating means learning, and sometimes, unfortunately, you learn by failing."

64.     As noted in my overall comment, I'm not convinced that most of the digital innovations are required for this project. Super-PON and SDN feel like furtherance of Google standards as opposed to critical to the project. The distributed verification system has little to do with this project and it is doubtful that it could scale sufficiently. Even Koala - the only one that fits nicely within the project - is not a requirement (as Sidewalk acknowledges).

65.     [DIA Reference: p. 73] What is the cost-benefit analysis for some of this technology? With some solutions I'm still left wondering if we really need these forms of technology. Take, for example, the sports court (OS.4, page 73). The idea that you can light up your bocce or basketball court is  sort of cool but how much will it cost to install and maintain in terms of human

labour and parts? People have been playing sports on outdoor courts for a long time without the right lines or with a spaghetti of lines. In a time of government austerity and competing interests, will the capital investment and subsequent operating costs needed delivery a concordantly significant benefit? I'm not trying to argue for mediocrity here but one of the challenges with these kinds of technology enhancements is that ultimately they cost money to install and maintain. If the costs of these kinds of enhancements are passed along though unit costs (sales) or rentals (e.g. market and affordable housing) or through maintenance fees or transferred to the City, I think it's really important to consider benefits vs. Wow factor vs. Costs (capital and operational). The City of Regina through its membership in the Municipal Benchmarking Network has a very detailed costing of the capital and operating cost implications of myriad public realm enhancements. Their approach is worth considering in the context of weighing which technology innovations are worth investing in.

66. [DIA Reference: p. 123] Is the digital infrastructure listed on [Page 123] necessary for the deployment of the digitally enabled services or can they be replaced with other recommended infrastructure?

67. I share the concerns of panelists around affordability in Quayside. In the proposal it was promised 20% would be affordable housing units, with the intent to price units "for households up to the 60th percentile of the income distribution for Toronto CMA households, where total annual housing costs do not exceed 30 percent of gross annual household income". Under the DIA, many business models are up in the air and decisions would impact what is traditionally under living expenses and place important questions around affordability

for average residents, but particularly those living in affordable housing units. Take connectivity, under this proposal it is assumed all residents will be connected fully...but the reality is that almost half of Canadian households with an annual income of $30,000 or less do not have access to high-speed internet. The business model to enable this level of connectivity need to take affordability into account.

## Digital Infrastructure

*Super-PON*

This section has 2 comments:

68.     Super Passive Optical Network is a technology that has promise but as already agreed by SWL is not required. The decision on what Optical Network technology is implemented can be left to a later date and to the implementing telecommunications provider, provided that Waterfront Toronto's requirements for technology currency are adhered to. Beanfield MetroConnect has recently been acquired by an American company. I don't know if they would view those commitments as an opportunity or a burden.

Depending on the timeline for Quayside there may be practical implications such as conduit sizing and the capacity of telco rooms in individual buildings that would be affected so a decision date should be set well in advance.

69.     [DIA Reference: p. 156; also, p. 11 of Sidewalk Labs Response to Digital Strategy Advisory Panel Preliminary Commentary and Questions] Sidewalk proposes to deploy its experimental and largely untested Super-PON technology as the

principal telecommunication backbone in Quayside. However, like Koala, it is readily apparent how this might benefit Sidewalk/Alphabet much more than it does Torontonians in any foreseeable future. Sidewalk offers no compelling case for deployment in Quayside in preference to the reliable and high performance service already available. Unless Beanfield shows a lot more enthusiasm for its deployment than has been reported so far, Super-PON should only be deployed as an experimental adjunct. It is a good thing that Sidewalk acknowledges that "Super-PON is not strictly a necessity for the proposed innovations."

*Software-Defined Networking*

This section has 5 comments:

70.     Software Defined Networks certainly have potential both as they enhance network security and because they eliminate the need for user managed devices. As with Super PON it is not required but worth further assessment. The business case is one that the telecommunications provider would need to develop to determine whether they want to implement this service. Waterfront Toronto would presumably need to assess whether to accept any such proposal as part of its existing agreement. If service costs could be reduced through centralized management and reduction of in-home devices, in addition to enhanced security this could be an attractive service. As has been pointed out elsewhere, the privacy aspects of an SDN vs the current user managed network needs to be assessed and I suggest the goal should be equivalent if not superior privacy.

71.    [DIA Reference: p. 147] Software-Defined Networks (SDNs) can offer significant benefits, esp. in terms of security, ease of configuration and maintenance, but they also pose privacy and surveillance risks that are ignored in Sidewalk's proposal. SDN technology emerged initially in enterprise settings where it was designed to centralize network control. This is in part achieved by providing much greater visibility into network activities. This feature is explicitly carried over to the proposed neighbourhood version - but is at odds with need in this context for a stronger recognition of individualized and local forms of control. (Interestingly it's also at odds with the argument made in favour of de-centralized control in the later section on Distributed Verifiable Credentials - 1.4.5)

The DIA discussion of SDNs treats privacy exclusively as a by-product of network security, and not more fundamentally, as (for example) informational self-determination. Treating privacy this way is inconsistent with Privacy by Design, founded on considering privacy issues from the outset as central to design. More generally, and similar to many other of its proposals, Sidewalk focusses exclusively on the prospective benefits, with no systematic treatment of possible costs or other downsides. Such an unbalanced approach makes it much more difficult to provide an in-depth assessment, esp. one that could endorse a proposal without hesitation.

72.    [DIA Reference: p. 148 / 150] What happens if people don't want to use the SDN (page 148)? Could they still get Bell Fibe or Rogers or whatever? Page 150 says people aren't required but will there be opportunity cost barriers to entry for other parties? This question of implicit technological lock-in is important to consider across each innovation presented.

73.	[DIA Reference: p. 153] On page 153 it states that "For wireless SDN networks, the state of the industry is much less mature and would require custom hardware." How would you ensure reliability and redundancy in what seems to be the likely event that a failure of the wireless SDN is likely to occur? How will redundancy and QoS be guaranteed in this living lab environment in general?

74.	[DIA Reference: p. 148] I wonder if in pursuing SDN, and the valuable risk mitigation practices, it unintentionally increases the risk associated with lost devices. Basically, if someone finds a phone would they then have access to everything on the phone and a link to that person's network? How could a user limit that access quickly? If risk is being shifted from the infrastructure to users there needs to be strong support/tools for such instances.

*Koala Standardized Mounts*

This section has 6 comments:

75.	[DIA Reference: Multiple pages] Koala is a bold bid to establish a new standard in a fragmented market. I was pleased to see that it now includes the ability to use existing devices through an adapter (Page 146). Also a recognition of the challenges in developing a new standard and the coming deployment of 5G as a potential catalyst. Sidewalk has laid out a detailed development plan so it seems they are proceeding regardless of Quayside.

SWL has stated that use of Koala would not be mandatory (page 131) which implies that poles or other mounting surfaces themselves in the public realm  would not be SWL owned. Given

this commitment it would seem reasonable to proceed to the next stage of developing a deployment model.

There is much work to be done to create the right approach to testing deployment. SWL has presented 2 options for deployment. Given the experimental nature of this new product and the likely iterations of software and hardware, it seems unlikely that the model of government ownership and operation on the Quayside site is the best way to manage risk. Contracting with Sidewalk for management and operation would seem the preferred approach with appropriate safeguards as proposed to mitigate market failure. If Koala is successful this would not preclude a different model that had a public entity earning revenues from the service in widespread deployment.

I found the risk mitigation proposals (pages 140-142) to be quite interesting. For example the ability to independently monitor sensors could be  a positive attribute in controlling surveillance and hacking given the prevailing lack of attention to security in many IOT devices . Waterfront Toronto may wish to consider whether other mounts or attached devices should be required to have similar capabilities in its Intelligent Community Guidelines. This may also inform the City's work in what it will require in order to permit deployment in the public realm.

76.     [DIA Reference:  p. 130, 132] There are evident advantages to standardizing access to power, connectivity, and mounts in urban settings, and Koala is a technically clever and sophisticated approach. However, the benefits claimed for Koala appear to be greatly exaggerated and poorly justified.

The principal rationale offered is the cost reduction that comes when replacing attached devices. This is illustrated in elaborate but misleading detail (p. 132), pitting the worst case of installing a conventional device in a traffic intersection requiring street closure, a bucket truck and lengthy approvals totaling 30 hours, against installing a Koala device low enough above a sidewalk to be reached by a single installer holding a pole.

The table showing various alternative device types (p. 130) again overstates Koala's advantages, claiming that Koala doesn't require bucket trucks for replacements, while all other devices do, without regard to the height above ground of the installed device.

This table reveals another biased comparison in implying that CAT6E is inherently limited to the current power-over-ethernet (PoE) capacity of 73 W, when a CAT6E device could be accompanied by at least as much power as reaches the Koala installation.

While there is mention of Koala being attractive to municipal utilities and maintenance operations, there is no indication that Sidewalk has approached the Toronto agencies that would be implicated in a Quayside installation of Koala and received a favourable response from them. Since they could be essential to the viability of this approach in Quayside, one wonders why this hasn't been achieved 2 years into the project?

Finally, the DIA notes that the success of Koala as a widely adopted industry standard that would drive unit costs down to competitive levels will depend on the roll-out of 5G globally. This will likely take some years yet and begs the question of

whether 5G, esp. given its health concerns, will attain both local regulatory approval and public acceptance sufficient to warrant Quayside installation.

Some of the interesting features of Koala, such as sensor authentication and (dis)ablement, are worth considering and are not dependent on other components of the Koala device.

This discussion offers an example of how Sidewalk, even when offering an abundance of details, has heavily weighted them to its advantage over other alternatives that would be worth considering.  This invites skepticism of its claims in other areas.

Furthermore, while Sidewalk is evidently keen to develop Koala, there is little benefit to Torontonians of adopting Koala to the exclusion of more demonstrably reliable and less risky approaches. So if Koala is installed in Quayside, it should be treated as an optional experiment, with Sidewalk taking responsibility for all costs.

77.     [DIA Reference: p. 130] Another concern with Koala if widely adopted, is that it would enable proliferation of sensor networks with the risk of contributing to ubiquitous urban surveillance. If Toronto streets were used as a test-bed for Koala development, a condition could be that Koala licensing would include compliance with a robust civil liberties regime.

78.     Koala devices - Since these devices will be deployed in Quayside, it would be in the interest of the City/Waterfront Toronto to negotiate for ownership of all or a portion of devices developed regardless of the business model developed long after/if the partnership ends. If the partnership ends, doing so

could help pilot other solutions in different areas of the City at a reduced cost by only paying to reconfigure the device (assuming that there is infrastructure around the City of Toronto to do this). Thinking about the value of assets that could be standalone regardless of the partnership. Haven read the more thorough explanation of Koala I do see the benefits of this technology for cities and there is a lot of value for the city to own some of these devices.

79.     Koala - I appreciate what SWL is envisioning, but I would like them to commit to transparency of attempted breaches. Often consumers only hear about a breach months or years after the fact and regardless of the data governance infrastructure developed I'd like to see them make a commitment to being open in this regard.

Will KOALA help with decreasing the amount of technology-junk left in the public and private realm? Toronto backyards are full of no-longer-used cables and wires that the original vendors no longer take responsibility for. By having a centralized mount does this help reduce the amount of defunct tech out and about?

Who gets to decide which governance process for KOALA is adopted (page 133)? There are many lessons to learn from digital street furniture purchase/leasing/transfer here. Toronto sidewalks still have newspaper distribution bins/infrastructure that is no longer needed. There are TTC bus shelters with technology embedded that was never turned on. The digital screens in the TTC subway platforms transfer ownership to TTC at the end of their life cycle. It is important to not only think about the process which lead (or not) to the installations of technologies but also the ones that govern their removal.

80.    [DIA Reference: p. 136] Input voltage requirement is 19-24 VDC for the Koala mount.  Is this voltage currently available on poles?

*Distributed Verifiable Credentials*

This section has 1 comment:

81.    Distributed Verifiable Credentials hold great promise for enhancing privacy. However, I don't see that Quayside is the right scale for leading this type of program which I understand is also the view expressed in the DIA. A national scale that includes financial institutions, governments and others is likely required to lead as the DIA describes. Quayside could perhaps offer itself as a test bed for linking those initiatives to specific urban applications.

**Metering & Monitoring (Electricity, Waste, etc.)**

This section has 9 comments:

82.    [DIA Reference: Multiple pages] I have a rather long comment on the waste management system described in the DIA. In my view, this is a good example of how some technological solutions might not actually be in the public interest or might have different impacts on different segments of the public.

As I understand it, the status quo for waste in apartment buildings is that waste is collected centrally and the building owners pay whatever fees there are for waste disposal. These are presumably passed on to tenants in their rent.

What is being proposed seems to be a "pay-as-you-throw" system - in other words, residents will have a code to access garbage chutes in buildings, and their waste contributions will essentially be metered. In theory, the main benefits will be: a) the building owners will be able to allocate waste costs to individual apartment units (waste disposal can become another 'utility' paid for by tenants); and b) there will be an incentive for tenants to reduce the amount of waste they produce since there will be cost implications.

The metering of any service has privacy implications - pay-as-you-throw introduces a new form of surveillance. It is more intrusive than pay-as-you-throw for individual homeowners in Toronto, since they pay an annual fee for a particular size receptacle, and are not metered based on weight, volume or kind of waste. Although on p. 45 it says that the PI collected would be "restricted to use only for the delivery and improvement of the service", there are two main problems with this. First, if the data is collected, it is accessible to law enforcement officials with or without a warrant, depending on the circumstances. So, there is the potential for state surveillance impacts. Secondly, it is always ambiguous what it means to "use only for delivery and improvement of the service". What will be considered improvements, and what is the individual and family level impact? This is a private surveillance impact. Will tenants start to receive notices letting them know that they are in the top quartile of waste producers in the building?

From a social justice perspective, this kind of individualized metering may be problematic as well. Low income tenants are made more vulnerable each time a utility or service is billed

separately from the base rate. An all-inclusive monthly rent is much easier to budget for than a monthly rent plus multiple utility bills that can vary in amount from one month to the next.

Taking it further - some people in certain circumstances will necessarily produce more waste than others. For example, families with babies or toddlers may produce more waste in the form of diapers.  A unit in which an elderly or disabled adult is cared for may also produce more waste. Where waste disposal fees are on a per-building basis and built into the cost of the rent, these extra burdens are shared across the entire building as opposed to being allocated to specific units in ways that may add increased financial pressures.  Consider this story on unit-level electrical smart metering: https://www.cbc.ca/news/canada/toronto/council-committee-to-tackle-what-some-claim-is-a-new-loophole-for-landlords-1.4352579

I think this is a good example of a technology solution that understands the problem principally from a building owner perspective and not necessarily from the perspective of residents/individuals/community members.  It creates data about individuals where none existed before, and places that data in the hands of a third party (where it is also accessible to the state). This has privacy and surveillance implications that should not be ignored.  Beyond that, it may have impacts on those who are on fixed and/or low incomes and have little flexibility to absorb new variable monthly costs.  In my view, this is not a neutral technology.  Is it really necessary to meter trash on a per unit basis?

83.     [DIA Reference: p. 10, 42, 101, others] The proposed waste management system discussed above does indeed offer

a good example of the excessively narrow approach SWL has taken to developing urban innovations. Not only does it consider the building owner perspective at the expense of the different perspectives building residents may bring, but it also represents a technological rather than human-centred approach to design. This is not entirely surprising since part of SWL's founding mandate was to find technological solutions to urban problems. No doubt there are many aspects of urban life where digital technologies may play useful roles, but these are not best found by assuming from the start that a technological intervention is the right answer. As Maslow famously said "I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail." Avoiding this temptation, especially coming from Google is hard. Evidently SWL is aware of this, with its prominent mention of not having "tech for tech's sake" and adopting the principle of "digital restraint." A clue to SWL's narrow perspective is revealed in how the DIA defines this term: "... where Sidewalk Labs identified and proposed only digital solutions that directly and materially advance Waterfront Toronto's priority outcomes." [p. 10] i.e. a technological "solution" is identified without first considering whether there may be less technological approaches that might work better. Doing so would better respect the term 'digital restraint.' SWL is only offering a weak version.

84.      I support the goal of a waste collection system that aims to reduce waste and increase recycling in apartments, both of which benefit society as a whole. As I stated in my general comments these types of services should be assessed by those with domain expertise before they are assessed for their digital aspects. However, I offer the following observations:

According to this relatively recent CBC Toronto story, 'Highrise

residents divert 27 per cent of their waste, compared to 65 per cent for those who live in houses.' Given that Toronto's population growth is primarily in high rise units, solutions need to be found.
https://www.cbc.ca/news/canada/toronto/building-code-changes-ban-on-landfill-organics-aimed-at-condos-apartments-1.4661100

Whether 'pay as you throw' is the best approach or education as is being done in the recently announced pilot, is worth study and is more about human behaviour than technology.
https://www.thestar.com/news/gta/2020/01/07/can-people-be-taught-to-better-manage-their-waste-residents-in-one-toronto-apartment-building-are-about-to-find-out.html

Wikipedia has a more optimistic view on the wide variety of 'pay as you throw' systems in place around the world
https://en.wikipedia.org/wiki/Pay_as_you_throw

In general, I would favour economic incentives e.g. carbon taxes, to steer consumption towards sustainability, with appropriate mitigation for low income households.

85.     [DIA Reference: p. 89-93] As a more general comment on this chart relating to building monitoring systems, in some cases there is metering and monitoring, but the information is identified as non-personal and/or de-identified (e.g. Thermal energy metering). In other cases, it is labelled aggregate and personal (e.g. building lighting). I am not sure that these labels are being used consistently. If there is metering, then I would consider this to be personal information. This is especially the case if it is tenant-level.

In addition, I am concerned that the approach to privacy issues is centred on whether the data will be shared. For example, there are repeated references to "Restricted data not published for privacy reasons".  While it may be important to indicate where data sharing is or is not contemplated, this is not the only privacy issue. For much of the monitoring technologies, the core issues are ones of surveillance - both by the building manager/operators/landlords and potentially by the state which will have means to access this data. The overall increase in the surveillance load on the residents of this area should be a clear and important consideration.  This is in addition to the other social/economic impacts of fine-grained metering/monitoring in people's living spaces.

86.     [DIA Reference: p. 91] Thermal energy metering is indicated for tenants - presumably this means that tenants' use of thermal energy will be metered. I would ask whether any consideration has been given to simply dealing with thermal energy on a building-by-building basis as opposed to assigning usage data to particular units. This is to address the issues I raised with respect to pay-as-you-throw. Individualized metering increases the surveillance load. It also makes monthly living costs less predictable, which places a disproportionate burden on lower income households.  Is this adoption of technology simply because it is possible? Might it not be better overall to have less fine-grained monitoring? Or is this section referring only to business tenants and not residential tenants? It is not clear to me. I think it must include residential tenants as other parts of this same chart clearly contemplate residential tenants.

87.     [DIA Reference: p. 82-84] The charts about the building management system raise some issues for me, particularly as relates to building monitoring. On page 83 odour sensors are

mentioned and "enforcement" is indicated. If there is enforcement, why is the data listed as non-personal and aggregate? Presumably, enforcement requires identifiability? Against whom is there enforcement?

On page 84 there is mention of noise sensors, and again, enforcement is indicated. However, the data is listed as de-identified and/or aggregate, and it states that there is no personal information. If there is no personal information, how is enforcement carried out? Against whom? This section indicates that noise monitoring takes place "to ensure tenants are adhering to an acceptable nuisance threshold." Is this just commercial tenants, or residential tenants as well? If it includes residential tenants, then these sensors are a new form of surveillance.

88.      [DIA Reference: p. 91] Lighting and occupancy sensors. Clearly this contemplates the collection of personal information. Is this necessary? My concerns are the same as those expressed above for thermal energy metering and pay-as you-throw trash. Is this kind of fine-grained monitoring really necessary?

89.      While I support the need to justify the level of monitoring I also support a number of the applications that require more 'fine-grained' monitoring.

In particular if digital electricity can provide consumption data by device by time of day it would be very helpful in targeting specific wasteful devices or habits to reduce consumption and costs. I find the current household level 'smart metering' data quite useless in managing my own household consumption.

I also fail to understand why thermal monitoring or electricity should be at the building level and not at the unit level. Individual houses are monitored and billed at the unit level and it is also the practice in newer condos for any or all of heat, hydro and water, including Waterfront Toronto projects. Aggregation at the building level preserves privacy but also reduces accountability. High consumption users are subsidised by moderate users.

If the concern is primarily the burden on lower income households then I suggest different remedies such as targeted subsidies are more appropriate than hidden subsidies that do not incent conservation. Given the focus on affordable housing in the overall proposal for Quayside this could be a real concern that should be addressed as part of the total affordable housing program while continuing to incent conservation. I don't know how this is addressed in the current affordable housing projects that Waterfront Toronto has enabled.

The CBC article cited is in regards to retrofits of existing buildings where a change in billing practices could indeed cause hardships (as well as perhaps windfalls) for some. Quayside is a new community and so the billing practices would be in place from the start.

90.     I share the concerns of panelists around the surveillance load of the case studies provided in the DIA-particularly around noise sensors. It is quite ambiguous how this technology will not collect "Personal Information" and still fulfill its use. Description: "monitor noise levels to ensure tenants are adhering to an acceptable nuisance threshold". This implies that there would be a consequence to this technology. How can only the "resident" making that noise be informed that their

unit's level of noise is higher than acceptable? What happens when they are a renter, who is informed? What happens if this is ignored? Who is this technology for? How will it be communicated to someone owning/renting this unit that this is a feature? How will they be aware of what it means to live in this unit? This feels highly invasive and hard to make the case that it would lead to improved living conditions for residents in these buildings.

## Digitally-Enabled Systems & Services

*General*

This section has 1 comment:

91.     Although domain experts need to assess these proposals for their merits in delivering on the desired outcomes I offer the following observations:

- Mobility As A Service (MAAS) - Should MAAS be a monopoly publicly managed service like transit even though it includes private sector components? The other option would be multiple competing private MAAS which include public sector transit, bikeshare etc as components. As MAAS would have a major impact on road use as well as transit use I vote for a monopoly public sector approach with competing private sector services inside it. It could be private sector sourced and operated. Regardless, this does not seem to make sense at Quayside scale or even Portlands scale. Should be at least Toronto wide or even GTHA wide including GO. It may need to start smaller than GTHA at a scale such as Toronto under a single political jurisdiction so it could actually be implemented.

- Does the Parks department want a Public Realm GIS Data Base which WT is to procure with public sector governance? If so, how is this funded? I note that this could help with the maintenance issues for signature, non-generic parks of which the waterfront has many.

- The Building Management Systems arena is full of existing and disruptive players. It is not clear to me what Sidewalk's innovations are in this arena especially for commercial spaces. This does seem an important opportunity for Canadian tech given the strength of the Canadian real estate development industry. Canadian companies such as Thoughtwire may already be smarter than SWL proposals. 'Proptech' (analogous to fintech) is a hotbed of venture capital investment. Sidewalk is not the lead vertical developer as stated in the Spreadsheet and whoever is needs the ability to accept, replace, reject Sidewalk proposals.

- I found the multiple uses of the Logistics - Freight Management System to be quite interesting i.e. Urban Consolidation Centre & Delivery System, Storage and Borrow System, Waste Removal

- The Dynamic Streets proposals are quite experimental but deserving of a pilot to see what works and what doesn't. Although personal information will be collected for parking it should not exceed what is already collected by the GreenP application

- Active Stormwater Management certainly has potential benefits but the business case is unclear as with many

other proposed innovations. I anticipate that overflow into the lake will still be needed for the ever higher peak events

- Jane Jacobs famously stated 'Old ideas can sometimes use new buildings. New ideas must use old buildings'. As we run out of old buildings in Toronto we need to find new ways to create the conditions that old buildings provide. Outcome-Based Building Code Monitoring and the Stoa proposal may provide solutions and are worth pursuing. As TS has noted elsewhere although building monitoring data for Outcome Based Code is not strictly personal it very definitely is tied to a suite owner or tenant for enforcement purposes and we should not pretend otherwise.

*Dynamic Curb*

This section has 1 comment:

92.     [DIA Reference: p. 121] Dynamic Curb - It is not clear to me whether this technology ultimately means that it will no longer be possible to park one's car without creating a digital record of that activity.  Again, this increases the surveillance load when it comes to living in this community.

*SeedSpace*

This section has 1 comment:

93.     [DIA Reference: p. 80] Who "owns" or "keeps" this software? A BIA? WT? Has anyone thought ahead to the kinds of insurance temporary users might need to allow robust and

inclusive access? It might be good to talk to City of Toronto Parks and Rec about the liability challenges community groups face with their insurance requirements for the rental of outdoor event spaces. If Quayside is going to scale up what pop-up culture looks like at the precinct scale, then insurance issues tackled now might really mean that a wider range of users could participate in the space.

*Efficient Building Lighting*

This section has 1 comment:

94.     Efficient Building Lighting (BE.XX) - sometimes energy efficient light creates a bad UX. Is there a way to build optional building occupant qualitative feedback into the overall OS of the buildings to help gain better feedback on how new lighting technologies can be ecologically and socially effective. Also, is there a way to use BE.11 tech to reduce bird strikes on windows outside too?

*Logistics*

This section has 1 comment:

95.     How does the L.6 logistics/dolly system work? Is it only underground? Does the operation of this system effectively create a new enterprise/interface for other logistics firms?

*Sharing Library*

This section has 1 comment:

96.     In Toronto the Tool Library is still up and running the The Kitchen Library is not. Is there a chance to partner with existing

sharing economy platforms for L.9? Also, in some cities the Public Library system helps with these kinds of processes. Here in Toronto at North York Public Library there is a 'fleet' of high-end sewing machines among other devices. The Borrow system should, when it can, invest in existing public and non-profit infrastructures before building a new parallel system (a variant on "digital restraint"). What if innovation took the form of new developments making significant investments in public infrastructure instead of building parallel systems?

*Waste Management*

This section has 2 comments:

97.	Waste management: what's the plan B for when these systems break? We're in week 5 of a broken elevator at work waiting for replacement parts and for trades to have time to fix it. With a highly mechanized and experimental waste management system and a waste removal system that is underground, what happens when it breaks? Will there be access to the waste stations for tenants and business operators? What happens if there is an extended power failure? Will there be ground level outdoor spaces which are accessible for waste storage? Where does oversized waste go? Do the buildings and public spaces anticipate space to leave things no longer wanted so others can take them? In a hyper-efficient designed space (indoor and outside) it's easy to imagine these kinds of redundant spaces might be forgotten or designed away.

98.	With the Waste Control System (W.1) is there a way to connect this to the SEED technology platform to encourage new businesses on site to sell goods with less packaging? If the

keepers of the SEED system could see the volumetric data from the Waste Control System there might be a way to experiment with HOW things are packaged and sold. There are interesting neighbourhood level pilot experiments with reusable containers including Reego coffee cups and Ozzi reusable takeaway containers. What kinds of other opportunities exist at the 12-acre scale? Will there be a circular economy local economic development officer in place to help ignite these kinds of synergies?

# Ecosystem Development

**Data Sharing**

This section has 1 comment:

99.	[DIA Reference: p. 367] Cross-sectoral data sharing is part of the discussion in this section as well, and it is proposed that a hub for data collaboration be created. While data sharing remains an important part of the overall proposal, the plans here are very vague and general (not really surprising given the need to back away from the Urban Data Trust). While Waterfront Toronto has indicated that it will play more of a role in relation to data governance for data sharing, these details need to be worked out - and this is not something that can be left to the last minute.

The data collaboration hub being proposed is an interesting idea - in many ways it is smaller scale and more modular than the Urban Data Trust, and it also seems more oriented towards private rather than public sector data (it does not resolve the public/private sector issues relating to data collected within the

development). It could allow for the development of smaller-scale, case-specific forms of data sharing; data sharing between specific entities rather than more global data sharing; and even more general data sharing. The complexity of developing data governance for data sharing means that it might be more manageable to proceed in this way than to create a large, overarching and all-inclusive infrastructure for data sharing - but this needs thought and discussion. If it is experimental, case-specific, and not clearly mandated, it might also not amount to much. So there are interesting ideas here, but they need to be further developed.

One of the ideas from the previous concept of "urban data" and the UDT was that data about urban residents collected from 'public' spaces was data in which the broader community had an interest, and therefore it should be governed in the public interest. This concept is somewhat lost in the discussion of the data collaboration hub. Part of the challenge with 'urban data' was the role of the public sector in relation to the governance of data in which there is a strong public interest. The role of the public sector still needs to be clarified in this regard.

**Intellectual Property**

This section has 1 comment:

100.    Given that the new services will necessarily create new IP the ability to exploit that IP becomes critical. Whoever is procuring services, there  needs to be an arrangement that enables contracted companies to continue to exploit that IP without restriction, so that it is not just Sidewalk or WT or other public sector actors who commissioned the work that benefit from the IP that has been created.

**Metrics / Targets**

This section has 1 comment:

101.	There are many positive statements of intents and ideas for engagement to foster the growth of this sector but there are no quantitative targets. The actual track record to date is not encouraging. The 2 substantive pilots I am aware of both use US companies technology : Numina which is the subject of the sample RDUA and AMP Robotics which is the vendor for the just announced recycling pilot.

While it may be premature to set specific enforceable targets I still feel an aspirational goal of 50% procurement of digital solutions from Canadian companies should be set and monitored by Waterfront Toronto. If we don't have measurable targets we will just be left with anecdotes of success or failure and the occasional press release.

Important questions would need to be answered such as:

- 50% of what - contract awards or $ volume or both?
- What is a Canadian company?
- Do local subsidiaries of global companies such as Siemens or IBM count?
- Is there a threshold for Canadian presence to avoid shell companies?

There are undoubtedly other measures that experts in this field could suggest e.g. should we, can we measure additional exports that are enabled. I am not in favour of the Economic Impact Assessment approach which was used in the MIDP as it

is too high level to really understand what the impact has been of this project.

**Patent Pledge**

This section has 2 comments:

102.     [DIA Reference: p. 7] Sidewalk makes several commitments about the patents it may file. However, it appears silent on the patents that other entities in the wider Alphabet enterprise may file. Will it be Sidewalk exclusively that files any and all patents derived from the Quayside project? What rules govern patents that Alphabet or any of its other subsidiaries or affiliates may file? The language would be much stronger if it makes explicit that these commitments apply to the wider Alphabet enterprise. This substitution of 'Alphabet et al' for 'Sidewalk' would be appropriate for many other commitments beyond those related specifically to IP and patents.

103.     [DIA Reference: p. 345, 352] Patent Pledge:  What are the terms of the patent pledge?  Royalty free, non-revocable, perpetual license? If so, can they be used under the same terms even for commercial purposes? What does it mean when the patent pledge will allow Canadian-residents innovators to innovate without the fear of patent infringement? I think a lot more thought needs to go into the treatment of foreground IP, especially where they are multiple creators.

**Procurement**

This section has 3 comments:

104.     [DIA Reference: p. 46] Procurement of services:  Those for which SWL takes responsibility, will SWL be subject to the terms of the City's procurement policies?

105.     [DIA Reference: n/p] I think there are significant points of friction between The Broader Public Sector Accountability Act and the kinds of procurement proposed throughout this document. You probably already know this ... there are all kinds of regulatory reform being discussed. Procurement is going to need its own special task force given the co-design and pilot proposals being kicked around. This is more complicated than an RFP for new fax machines.

106.     [DIA Reference: p. 356-360] While I commend SWL on their grasp of innovation procurement in the public sector, it comes off as patronizing when the only details offered about their planned procurement practices are that they will "seek to ensure the Canadian ecosystem is aware of all procurements and prioritize Canadian companies by breaking ties in their favour. The specific mechanisms to achieve this, while ensuring best-in-class and fair value, will be further clarified through engagement with the industry."

Details could have been offered around ensuring they won't just create awareness within the Canadian Ecosystem, but inform and educate companies of all sizes to ensure an even playing field. In Section 3 SWLs outlines how it will support the tech community, but procurements are a different layer that needs requires supports. Furthermore, they may be a private company, but with this project they don't just answer to common law. They answer to the residents of Toronto, the Canadian tech ecosystem, and the companies who will take part in any of their procurement processes. Anything less than full transparency in

process and decisions - equal to that in the public sector - is not acceptable in my view (and doing so would not endanger IP). Based on the fact that SWL has identified itself as the potential procurement lead for the majority of services it makes transparency all the more important.

As the DIA mentions, the original Plan Development Agreement, under schedule D, stipulates that SWL is to "seek to balance — in the public interest — the use of market-based sourcing, on the one hand, and the direct facilitation of Purposeful Solutions for innovation, on the other hand.". The Plan Development Agreement also mentions that this is to be guided by the following principles of consultation, fairness, value, flexibility, and compliance. Transparency needs to be part of these principles, to not do this is a disservice to the Canadian ecosystem.

**Urban Innovation Institute**

This section has 5 comments:

107.  [DIA Reference: p. 20] The Urban Innovation Institute is established and funded by Sidewalk with a $10M investment. It is also identified as the entity to establish practices for trusted data sharing and other ethical practices. Does this not set up a conflict of interest?

108.  [DIA Reference: p. 345, 347, 366] Urban Institute: There seems to be a lot of crossover between the UII and some of the existing publicly funded entities in the province and across the country. Will the activities of the UII be sufficiently different to warrant the creation of another entity? Will the UII be a not-for-profit? Will it own IP?

109.    The $10M in seed money for an Urban Innovation Institute $10M is a very positive suggestion. Note that the proposal is to build a plan in parallel with the Implementation Agreements. This in itself is a material workstream that needs resources, and wide engagement both to develop the plan for the plan, and to define a mission that avoids the overlap that is identified in another comment as a concern such as with the recently created U of T School of Cities.

110.    [DIA Reference: p. 362-365] Urban Innovation Institute: $10M won't go very far. There is a discussion about chair<u>s</u> (plural). For context, 1 Canada Excellence Research Chair costs $10M.  Who is going to put up the money to actually run the place? It will be $$ which means less money put into research.

111.    I lack faith this Urban Innovation Institute will produce valuable civic or discovery outcomes. I think this money will have more impact if it is funnelled into existing institutions that already have research and engagement infrastructure. As positioned I have a hard time seeing how this UII will lead to the expressed outcome (p. 365) "Expanded knowledge and insight across a larger community of urban innovators". The $10 million might be better spent being shared between university researchers (but not through SWL grants, perhaps money given to a special pool at CIHR/NSERC/SSHRC/Ontario Centres for Excellence (with government match); to the Toronto Community Foundation for civic innovation work; and to the City itself to help support ongoing professional development for inside-government and visiting learners (e.g. City of Barcelona has a whole process for expert visitors and journalists).

**Other**

This section has 2 comments:

112. Sidewalk software development is currently done in New York. I was unable to find any reference to creating a software development lab in Toronto to support the development of Quayside services. While there has been much discussion of moving the Google HQ to the Waterfront a Quayside software lab would be an important first step and represent a net addition to the ecosystem rather than just a consolidation of existing Google capabilities.

    Waterfront Toronto should insist on this at a scale that represents the scale of the Quayside project as a condition of moving forward.

113. [DIA Reference: p. 339] Standards play a vital role in building reliable digital systems just have they have long done in the  physical built environment. To pursue the goal of developing the Canadian urban tech sector, relevant digital/data standards developed by Standards Council of Canada's accredited bodies such as the Canadian Standards Association (CSA) and the CIO Strategy Council should be adopted wherever available.

# Partnership

One Panelist put forward detailed comments and analysis about Sidewalk Labs as an Innovation and Funding Partner. These have been adapted into Appendix D.

# Other

**General**

This section has 2 comments:

114.    [DIA Reference: p. 169] Waterfront Toronto's Digital Principle #1 speaks to equality and SWL is illustrating how their proposal related to Quayside satisfies this principle.  However, are we not at risk of violating this same principle as it relates to the inclusion of the rest of Toronto?

115.    [Digital Technology | n/p] I know they mentioned they plan on piloting the devices in other environments, but knowing a bit of what the installation of a smart city technology can look like it requires institutional knowledge and expertise from city staff. What kind of involvement can the City expect throughout this development? There is a good case to be made around negotiating a lower long-term cost/ownership of some devices for the City of Toronto outside of Quayside, if desired.

**Potential Partners / Resources**

This section has 3 comments:

116.    [DIA Reference: p. 154] SWL should look to tap into the expertise of the [Centre of Excellence in Next Generation Networks](#) based out of Ottawa to potentially provide insight around SDN as an example.  We have a fully functional CENGN testbed installed at Communitech (As does MaRS and Invest Ottawa).  A good way to further connect with the startup and scale up communities around application development. In the

same vein, SWL should also be familiar with the work of
ENCQOR (5G networks) and AVIN (connected and autonomous
vehicles), both of which are public private initiatives with
programming and connections that could be relevant to
Quayside and beyond. MaRS and Communitech are partners on
these programs as well.

117.      [DIA Reference: p. 189] SWL should also look at the
standards work of ETSI as it relates to smart cities in particular.

118.      I would hope that SWL would look to meaningfully tap into
expertise from across Canada, not just the Toronto-Waterloo
corridor.

## Literature Review

This section has 7 comments:

119.      [DIA Reference: p. 181] The Estonian model is referenced
on this page, specifically what improvements will be made
beyond the Estonian model.  How much of the Estonian model
is embedded in the SWL model?

120.      [DIA Reference: p. 420] On the overview of existing
policies, I was struck by the inclusion of the Charter as
addressing "privacy and data protection", "digital rights and
ethics", and "data governance and sharing". It's a bit of a
stretch. In my view, the inclusion of the Charter must be based
on extrapolations from things like fundamental rights and
freedoms, and the s. 15 equality right. If this is the case, though,
then it underscores the absence of any reference to human
rights legislation (provincial and federal, and including the
Canadian Bill or Rights) in the table of existing legislation.

121.    I am very glad to see that SWL included this section in the DIA.  Although not exhaustive, it serves to prove the point that many other organizations and cities around the world are looking to crack the smart city nut and our initiative will benefit from the knowledge and best practices that are under development.

122.    [DIA Reference: p. 410] Echoing principle #10 for the Digital Charter, namely, strong enforcement and real accountability.  This needs to be a core principle for this project as well.

123.    [DIA Reference: p. 431] Datasheets for Datasets:  Perhaps this should be added as a RDUA requirement.

124.    [DIA Reference: p. 463] The fact that X-road is being used by 150 public institutions and 500 institutions and enterprises in Estonia and that other countries have also adopted this approach leads me to think that there is a good body of knowledge here that we should be tapping into.  Perhaps a more fulsome analysis of X-road is warranted.

125.    [DIA Reference: p. 335] This extensive and detailed section is a welcome addition to the MIDP documentation and provides a valuable resource for future planning. However, it suffers from two telling shortcomings:

First, why does this overview of policies and initiatives come so late in the planning process, and apparently mainly in response to a DSAP request?  If Sidewalk wants to be taken seriously about being an open, leading and public-spirited urban innovator this kind of review would have begun long ago, at the

same time Sidewalk was developing its techno-centric urban visions contained in its secret 'Yellow book'. Such a review could then could have demonstrably better informed the response to the RFP and be published with the initial submission, both as an indication of its diligence as well as a resource for the subsequent public discussion.

Second, rich as this review is, it provides scant clues as to how Sidewalk's proposals were influenced by relevant policies and initiatives developed elsewhere. While obviously Sidewalk can't respond to every aspect of the material reviewed, it would be helpful to learn something of how it has been influenced - e.g. the models it adopted or avoided. This is a particularly glaring omission in the case of the Declaration of Cities Coalition for Digital Rights (section 4.4.2.2 Digital rights principles, p. 404), which the City of Toronto signed on to in June 2019. These will surely inform the City's regulation of Sidewalk's digital initiatives in the Quayside project, and while totally absent from the much longer treatment of WT's Principles and Guidelines (pp 5-8) will likely be more consequential.

Appearing in this form and at this stage, this overview section suggests an after-thought, more intended to allay concerns than as evidence of formative background research.

# Appendix C – Panelist Contribution: DIA Accessibility Review

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I have chosen to focus my review on disability[3].  We at the [Inclusive Design Research Centre (IDRC)] have been reluctant to explicitly single out disability when discussing inclusive design, as we view it as one facet of diversity and inclusion; and segregation, relegation to specialized services and marginalization are ever-present risks when one facet of a person is isolated and fixed. However, I feel it is important to outline some fundamental considerations regarding disability that I had assumed were generally understood but appear to be lacking in the DIA. From a data perspective, people experiencing disability are the most at risk in smart systems, but also have the most compelling benefits from smart systems that centre their needs. (When designing systems, we view disability as a mismatch

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[3] How disability is referred to is a contested topic that is beyond the focus of this review. I feel it should be up to the individual to choose how they wish to be referenced. As this is not possible when referring to a group, I will switch between 'person with a disability', 'person experiencing a disability' and 'disabled person'.

between the needs of the individual and the service, product, experience, or environment available to them.)[4]

***The problem with decisions based on data and numbers***

The fundamental premise behind "smart" communities: to gather and use data to guide decisions, including automated decisions, is problematic when considering disability. Quantitative data analysis is inherently biased against small numbers and outliers, or minorities. Predictions and probability based on statistics does not apply to you if you are not average. The data gathered to inform smart decision systems is quantified and statistically analysed to determine dominant patterns, and predictions based on probability. If the data-based predictions and tallies are used to guide decisions, the decisions will serve the represented majority, average or mean; and not the minority; no matter how great the need of the minority, or how strongly the decision has an impact on their lives.

The only characteristic people who are labelled as 'disabled' have in common is difference from the average. Decisions based on population data will <u>not</u> serve the relevant needs of people experiencing disabilities. People experiencing disabilities are also very different from each other. In many data sets, individuals with disabilities will each be a minority of one. Therefore, disability, from a data perspective, is often synonymous with edge requirements, outliers or minorities at the margins of the data set.

AI ethics has focused on lack of proportional representation or data gaps (e.g., under-representation of women or racial minorities), and

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[4] Disability is also recognized as a claimed and valued identity and culture. This aspect of disability is beyond the scope of this review.

human biases finding their way into algorithms. People with disabilities are affected by both these concerns, but even in an ideal scenario where both these concerns are fully addressed, decisions based on population data will be biased against small minorities, outliers and specifically people experiencing disabilities. Current AI ethics considerations do not adequately address the fundamental bias against outliers and small minorities in decisions based on quantitative data.

### *Beyond What Data is Collected*

To assess the benefits and risks of smart designs, we need to go beyond what data is being gathered for what purpose, and how the data is secured. We need to know what 'smart' decisions are being made, based on what data, integrating what assumptions, and by whom.

In section 1.3, what decisions and adjustment will be made regarding energy consumption and pricing? What happens to people who need to use energy intensive systems to perform daily functions and stay alive? What decisions will be made regarding waste management and waste reduction programs? How will individuals and families that have no option but to produce more waste because of illness or disability be treated? In section 1.4, what happens with secure identification systems and people who have no relationship with a qualified issuer and no access to the application?

### *Who loses when we optimize efficiency?*

Accessibility and inclusive design are precarious values. Few people contest that they are important and valuable. However, they are the first to be compromised when there are budgetary or time pressures. Smart systems that optimize and reward efficiency using data

incentivize abandoning or avoiding difficult, complex or minority needs.  How will this be addressed?

This bias is evident in much of the DIA. While section 2 lays out laudable principles regarding inclusion and equity, there is little evidence of co-design, accessibility or inclusive practices (other than a separate set of enhanced accessibility features) in the remaining sections. There are many missed opportunities to address accessibility challenges in section 1, from better wayfinding, to accessible transit, to lending accessibility tools and resources. Important accessibility risks are missed (e.g., reliance on visual signals). Relevant accessibility regulations are ignored and not referenced, even though there is a very granular listing of other regulations (e.g., AODA Information and Communication standards is not referenced). Where accessibility legislation is mentioned (AODA and beacons), the regulations are misrepresented.

***Evidence of Commitments***

In general, the most important indicators that Sidewalk is serious about its commitments to accessibility and inclusive design, is not in section 2, but in all the other sections. The laudable principles listed in section 2 are not applied in the other sections. These sections show a lack of integration of inclusive design understanding. Even the structuring of the teams within Sidewalk segregates, rather than integrates, team members concerned with ethical practices, such as the privacy and data governance teams (e.g., p 237). At best inclusive design is listed as a gatekeeping function, after decisions are already made, not as a proactive co-design practice. There are isolated, token nods to "accessibility enhancements", without recognition of equity and inclusion as part of every design decision and process. For example, why is there no mention of a commitment to requiring

inclusive design and accessibility in procurement contracts with third parties?

***The problem with representation, categorization and labelling***

Notions of representation do not hold when reflecting the needs of people experiencing disabilities. There is no clear, bounded set of characteristics when it comes to disability. Diagnostic categorization offers very few functional benefits, and risks further excluding people who don't fit or straddle the categories. For example, knowing someone is blind does not tell you whether the person is Braille literate, how much residual vision they have or use, whether they once had sight and formed spatial models from the time they had sight, or any of the many other relevant characteristics of the person. As a result, most assumptions that come with disability categorization are flawed. To fully capture the relevant needs of all individuals that experience disabilities would require an unrealistically large number of representative groups. For many people with disabilities, no one else can adequately represent their unique needs. This is an issue with data analytics and AI decisions in general.

The DIA is far from addressing this problem. The Numina example lists "people, bicycles and other vehicles" as possible classifiers. There is no recognition that there are other classifiers or possibilities. There is no discussion of how the data will drive decisions. What happens if there is an exhibit that is uniquely essential to me but very few other people? What happens if I move about with a mobility device in a very unusual way? (e.g., What if my mobility device is a plinth because I can't sit upright?) How will I be classified? What if I am very short, will it be assumed that I'm a child? What if my data is missing because the space is inherently inaccessible to me? How will the data gathered be used to drive other decisions? Will the decisions

made without my data be propagated throughout other designs, further excluding me?

### *Disproportionate benefit and risk*

People experiencing disabilities are the first to feel the impact of the flaws or risks of any system design. When you have a disability, you are constrained in your ability to adapt to a design, you have fewer degrees of freedom. You are also less insulated from the problems in a system.

Because most systems are designed for the average or majority, if you have a disability there are many current systems that you have difficulty using or can't use. Therefore, innovations have a far greater potential to offer transformational change, rather than just incremental change. This is in line with the saying "for most people technology makes things more convenient, for people with disabilities, it makes things possible." However, this also means that your ability to do something will be dependent on the technology. Cutting off the power to a respirator you depend upon, for example, can mean you can no longer breathe. Changing a system so that your communication device, which you invested hours to learn to control, is no longer interoperable means you will not be able to communicate.

People experiencing disabilities are harmed by data in both directions. The risks are dismissed because they only affect a small number. The benefits are not pursued because they only benefit a small number. How will this be avoided?

### *Privacy is a 'red herring' when it comes to disability*

If you are highly unique, you can be re-identified. If you are the only person in a neighborhood to order a colostomy bag, for example, you can be re-identified. If you are the only person with a specialized wheelchair in your building, you can be re-identified. Most people with disabilities must barter their privacy for essential services. The act of requesting an exception, or something not usually provided, identifies you whether or not you provide your name, address or SIN, or whether or not your face is recognized. Data privacy for people that are outliers is often an unrealistic luxury that can't be protected by de-identification at source.

Many people experiencing disabilities are also the most vulnerable to data abuse and misuse. Whether it is identity theft, fraudulent transactions, predatory sales, or online abuse and harassment, people with disabilities are disproportionately vulnerable.

Section 1.3 makes it clear that people with disabilities will need to request exceptions to the standard offering and by doing this they will sacrifice their privacy. Whether it is the adaptive traffic signals and people that require more time, the LED lights to signal changes and people that require non-visual signals, the e-valet parking services and anyone that requires accessible parking spots, or the MaaS User Platform and anyone that requires accessible options; people with disabilities will need to request exceptions to the standard functions and thereby compromise their privacy.

The Numina example makes it clear that de-identification also strips away essential data that serves individuals who are unusual. To sufficiently de-identify someone very unique (e.g., someone moving about with a motorized plinth), would make the data meaningless and fail to capture their unique needs.

Transparency, agency regarding the use of your data, the ability to make use of the insights from your own data, are all critical considerations for people with disabilities. These are not adequately covered. However, the mentioned data minimization and smarts localized to your personal device are helpful approaches.

***Assume a Breach***

What is more important than privacy, for anyone with highly unique needs, is how a data breach will be handled and the ways in which data abuse and misuse will be prevented and policed. How will someone whose identity has been stolen be supported? How will the perpetrators of data fraud, predatory sales tactics and online harassment or abuse be handled? How will people who face these misuses and abuses be supported and compensated?

***What constitutes authentic consultation?***

The document lists many exemplary practices for participatory design and authentic consultation but fails to articulate a plan or process for ongoing co-design, and ongoing means of reaching out to people who are missing from the decision-making but will feel the impact of the decisions.

Better than consultation would be a bottom-up community-based planning process that grows from small successes and allows iterative improvements to expand the needs served.

***What constitutes informed consent?***

There is no definition of informed consent that takes people with disabilities into consideration. How will people be informed? How will

coercive consent be prevented (e.g., "consent or you can't use the essential service")? What happens to someone that can't use sight or can't read if the notification of implied consent is only visual?

***Not an excuse or rationale***

The world is not currently inclusive, accessible or free from exploitation. The section listing the current data capture systems seems to imply that what Sidewalk proposes is in some way more ethical. The current data capture systems are concerning but they are also not aggregated. They are used to make largely fragmented decisions. Aggregated data that drives decisions will risk the formalization, automation and amplification of discrimination. They should be held to a higher standard.

Other sections within the DIA seem to exaggerate, misinterpret or distort stated cautions to make them seem unreasonable. This includes the lengthy sections on data privacy. They obfuscate or create a smoke screen for other important concerns.

People with disabilities are often treated paternalistically or infantilized. There needs to be the recognition of the "dignity of risk." Risk should be a matter of informed personal choice and agency.

***Additional Recommendations***

The following are additional recommendations that begin to address some of the more global concerns above:

- The criterion for replacing human decision-making with AI-based decision-making should not be based purely on equivalent percentage of accuracy, but also the pattern of accuracy. How accurate is the decision when it comes to minorities and outliers?

- Rather than competitive prioritization based on data, designs should strive to optimize choices within an integrated system. Scaling a design should be done by diversifying based on context and local stakeholders, not by replicating a winning formula.

- The impact or success of a system or design should not be based on the number of people it benefits, but how well it serves people who can't use or have difficulty using the current alternatives, and how well it serves people who are most vulnerable to the direct and indirect impacts of the design.

# Appendix D – Panelist Contribution: Considerations on Sidewalk Labs as Innovation and Funding Partner

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### Analysing Sidewalk Labs' suitability for the Quayside project

As Sidewalk Labs seeks to undertake one of Toronto's most ambitious and prominent urban development projects, a critical consideration is its suitability as a lead contractor or Innovation and Funding Partner. Acknowledging that Waterfront Toronto has a team assessing the prospective relationship, the following preliminary analysis is intended to support that evaluation by providing critical observations and constructive suggestions. It reflects the perspective of an academic with longstanding research interests in participatory design, community networking, surveillance studies and cyber-infrastructure policy development. As the following material is outside the scope of Waterfront Toronto's specific brief to DSAP for a review of the DIA, at management's request it is submitted as a separate appendix.

Five questions informed this analysis:

1. Does Sidewalk have a strong track record as an urban innovator appropriate for Toronto?
2. Can Sidewalk's core claims be relied on?
3. What does experience with Sidewalk to date in this project indicate about its reliability as a partner? In particular, has Sidewalk respected its contracts and other commitments?
4. Can Sidewalk be treated as independent of its parent Alphabet/Google and its wider enterprise?
5. What are the risks of partnering with an Alphabet/Google enterprise?

These are each addressed in turn.

***Question One****: **Does Sidewalk have a strong track record as an urban innovator appropriate for Toronto?***

Short answer: No.

Any proponent seeking to undertake one of Toronto's most ambitious and prominent urban development projects would be expected to show a track record of successful previous projects approaching the scale and complexity of Quayside. But the MIDP and DIA provide no evidence of Sidewalk's prior accomplishments, nor can any be found on its [website.](#) This is a major concern given the high stakes, and calls for careful investigation of Sidewalk's suitability as a partner or contractor.

Sidewalk Labs employs many people with significant relevant experience, and particularly given the pedigree of its parent company few would question their ability to develop sophisticated urban technologies. However, as an organization Sidewalk provides no evidence of leading an urban building project in any way comparable to Quayside. Oddly, Sidewalk barely mentions what its staff would contribute specifically, and offers no substantive case for the project

leadership experience it would bring. Nor does the MIDP/DIA address this key shortcoming and its possible mitigations. Sidewalk's website, which is mainly devoted to promoting its innovative plans for Toronto, provides no further comfort in this respect.

As well, among its key activities, Sidewalk lists: "... we develop and implement technology systems and products that drive improvements to the quality of life in cities." Surely it should be able to provide some illustrative examples to support this claim? Sidewalk's website reveals three possible candidates:

- Intersection, a (digital) outdoor advertising company behind the LinkNYC kiosks;
- Coord, an "Alphabet-backed startup that helps cities manage their streets, ... [by enabling them] "to collect, analyze, and share curb data ..."; and,
- Replica, "a next-generation urban planning tool that can help cities answer key transportation questions."

It is surprising that none of these closely allied and evidently relevant companies is mentioned in the DIA or MIDP. This is especially puzzling in the case of Intersection, since it shares the same floor of 10 Hudson Yards in NYC with Sidewalk Labs and Dan Doctoroff is Chairman of both companies. Could it be that Intersection would raise uncomfortable questions about digital advertising in Quayside, a topic that has been absent so far in the Quayside planning discussion? Might the absence of Replica from Sidewalk's proposal be because it relies on personal information collection that doesn't meet high data protection standards as some have claimed? At least these are issues worth considering as part of Waterfront Toronto's partnership evaluation exercise.

Sidewalk's approach of going for a 'moon shot' by declaring ambitions sufficiently bold to attract notable endorsements without the need to demonstrate more modest prior accomplishments is reminiscent of the "super-credibility" strategy that Peter Diamandis advances in [BOLD: How to Go Big, Create Wealth and Impact the World](#). This book promotes the rapid emergence of technological mega-enterprises based on disrupting the norms of conventional government and business as usual. Coupled with this form of 'boldness,' Diamandis also promotes his [Peter's Laws](#). Here is a selection:

- Start at the top then work your way up
- Do it by the book… but be the author!
- When forced to compromise, ask for more
- If you can't beat them, join them, then beat them
- If you can't win, change the rules
- If you can't change the rules, then ignore them
- "No" simply means begin again at one level higher
- Bureaucracy is a challenge to be conquered with a righteous attitude, a tolerance for stupidity, and a bulldozer when necessary

Among *BOLD'*s most notable endorsers is Eric Schmidt, who played a key matchmaking role in bringing Sidewalk to Toronto when he was Alphabet CEO. It is not hard to see how Sidewalk actions are in keeping with Diamandis' "super-credibility" strategy and 'Laws.' However popular these may be in Silicon Valley, they are inappropriate for urban planning settings where citizens need to deliberate before buying in and then live with the long term consequences whether things work out well or not.

In the absence of a track record of relevant experience normally expected of a proponent, and consistent with a 'bold' strategy,

Sidewalk appears mainly to rely on the reputation of its parent and the dazzle of its proposed innovations to carry the day. Alphabet/Google has indeed a well earned reputation for extraordinary achievements in developing digital technologies now woven into people's daily lives, as well as for pockets deep enough to fund any project it deems worthwhile. Sidewalk has also assembled a multi-disciplinary group of talented urban/tech professionals. But no matter how technically sophisticated and appealing the urban innovations they propose are, without significant prior organizational experience these do not easily translate into a viable urban neighbourhood building project, especially one as demanding as Quayside. This probably represents the largest risk Waterfront faces.

***Question Two: Can Sidewalk Labs' core claims be relied on?***

From the very beginning of the project Sidewalk has been making bold claims about its innovative approach. As noted in DSAP's DIA Comments (#4), its statements are not always consistent and at times contradictory. Especially when viewed in light of Sidewalk's penchant for PR, this raises obvious concerns about the extent to which its many claims can be treated as reliable evidence of its actual intentions.

Here we consider just three:

One of Sidewalk's most central and oft-repeated claims is that it is developing its Quayside plans through a participatory process of "co-design" with Torontonians. Certainly Sidewalk has pursued an extensive public engagement program, and demonstrated that it is adept at applying the techniques of participatory design in certain contexts. The MIDP celebrates the achievements of this "robust public engagement process," stating that an "unprecedented level of preliminary public input — reaching more than 21,000 Torontonians in

person to date — helped shape the plan." [MIDP, Vol 0 – Overview, p. 66]  Despite the large number of people Sidewalk has 'engaged,' the process has not substantively legitimated its proposals. Nor is it consistent with the Participatory Democracy principle (#4) that the City of Toronto is committed to upholding and will apply to Quayside development. See DSAP's DIA Comments (#18). As Shannon Mattern observes in the case of Sidewalk's experimental showcase workspace at 307 Lakeshore, accessible tools of civic engagement become the means for "corporate self defense," for neutralizing the controversies that the project attracted from the start.

Sidewalk also repeatedly insists its proposals are exclusively in pursuit of benefiting residents, and not "tech for tech's sake." As the DSAP's comments on the DIA point out in with regard to Sidewalk's proposals for digital infrastructures and digitally enhanced services, in many cases it has adopted a narrow techno-centric approach to addressing problems leaving the benefits to residents far from clear. See for example Comments #63-66, #68-72, #76, #83 in Appendix B of this Supplemental Report.

In 2016, Sidewalk CEO Dan Doctoroff wrote:

> Larry Page and I shared a view that a combination of digital technologies — ubiquitous connectivity, social networks, sensing, machine learning and artificial intelligence, and new design and fabrication technologies — would help bring about a revolution in urban life. (Medium, Sidewalk Talk, Nov 30, 2016, https://medium.com/sidewalk-talk/reimagining-cities-from-the-internet-up-5923d6be63ba )

Sidewalk's 2017 Vision document famously announced Quayside would be the "the world's first neighborhood built from the internet up." It followed up with various proposals for 'Responsible Data Use'

principles, impact assessments and frameworks as well as an elaborate Urban Data Trust. However, in 2020 Doctoroff has been quoted as as saying "The project 'never really was about data.'" (FP, Jan 13, 2020). Just as surprising, given Doctoroff's close connection to the Sidewalk affiliate Intersection as mentioned above, is his claim that "ads play no part in its business model: 'Zero—not one bit.'" (Forbes, February 17, 2020, https://fortune.com/longform/alphabet-sidewalk-labs-quayside-toronto-techlash/

These apparent inconsistencies cast doubt on which of Sidewalk's claims can be relied upon, so each needs to be carefully scrutinized.

***Question Three: What does experience with Sidewalk to date in this project indicate about its reliability as a partner? In particular, has Sidewalk respected its contracts and other commitments?***

Sidewalk has repeatedly deviated from its commitments over the past two years, so it is good to know that Waterfront has its 'Eyes fully open' and has been maintaining a tracker for "All of the infractions, all of the violations that have been reported over the last few years." (FP, July 17, 2019, https://business.financialpost.com/technology/eyes-fully-open-waterfront-toronto-executive-says-agency-keeping-tabs-on-sidewalk-parent)

The key issue of who leads on digital governance policy, Sidewalk or Waterfront, offers cautionary example. At the DSAP meeting of October 18 2018, facing stiff resistance from members about its extensive Digital Governance Proposals (41pp), Sidewalk backed off and declared that it would defer to WT in this area. However, far from stepping back, the MIDP goes much further than before in prescribing detailed governance bodies, including an elaboration of the previously rejected Civic Data Trust, renamed Urban Data Trust. This was again soundly rejected in the Threshold Issues agreement. But its echo, in the form of a proposed 'data collaboration hub' (no leading caps this time) re-emerges in the DIA. As noted in DSAP's

Commentary, the governance issues around it have not gone away either.

One of the most egregious violations from DSAPs perspective was Sidewalk holding the Panel to strict non-disclosure on a draft chapter while in apparent violation of the PDA it shopped the draft around widely soliciting backers (see Preliminary Comment #148). Under threat of Waterfront halting the project, Sidewalk agreed to comply better in future.

On what basis can Waterfront be confident that Sidewalk's evidently preferred *modus operandi* of "don't take no for an answer" [see Question One], revealed in these examples, won't return after it gets the go ahead and the threat of project cancellation diminishes?

***Question Four: Can Sidewalk be treated as independent of its parent Alphabet/Google and its wider enterprise?***

Short answer: No.

Senior Sidewalk officials have repeatedly insisted, often without offering significant evidence, that the company should not be judged the same as its parent or sibling enterprises. There may be some basis for this claim in that Sidewalk says it will not give Google preferential access to the data it collects, but in such key areas as business strategy, financing and overall managerial control, there are clear indications that Sidewalk is unlikely to diverge significantly from Alphabet or Google. Indeed, since nearly all Alphabet revenues are earned by Google and they have the same CEO, Sundar Pichai, and same CFO, Ruth Porat, from a public perspective they can be treated as effectively a single parent enterprise. It appears from the outside that Alphabet/Google determines Sidewalk corporate strategy, reviews Sidewalk's major commitments before approval and is the primary funder of Sidewalk and its initiatives. Sidewalk's continuing active promotion of moving Google's Canadian corporate headquarters to Quayside, or the adjacent Villiers West, even after it conceded to return the geographic scope of the project to that of the RFP, lends credence to this perception. There may be nuances to this

picture, but given the weight of publicly available evidence the onus should be on Sidewalk to articulate clearly its relationship to Alphabet/Google, and if its policies differ significantly from its parent, precisely where and how they differ. That the MIDP/DIA is largely silent on Sidewalk's relationship to its parent and its subsidiaries that would potentially become involved in the Quayside project (e.g. Intersection, Coord, Replica, Waymo, Waze) is an important shortcoming that weakens Sidewalks credibility. The Partnership Evaluation will need to shed light on Sidewalk's consequential corporate connections.

***Question Five: What are the risks of partnering with an Alphabet enterprise?***

If Waterfront gives Sidewalk's proposals the go ahead, it will be partnering with a giant enterprise, Alphabet/Google, that has earned its reputation as the prime exemplar of 'surveillance capitalism' (Zuboff, 2019). Alphabet/Google makes its fortunes through monetizing the fine-grained data traces of millions of individuals' digital, and increasingly physical, activities. It has been fined a combined $9.5 billion since 2017 by EU antitrust regulators  while facing further significant government investigations for its [anti-competitive behaviour.](anti-competitive behaviour.) As evidence of how challenging Alphabet/Google is as an opponent, the US Dept. of Justice and attorneys general from 48 states have formed a coalition to take on [anti-trust investigation of Alphabet/Google](anti-trust investigation of Alphabet/Google). The company has also been involved in several high-profile controversies, in such areas as data protection (e.g. Google's [Deep Mind accessing NHS health data](Deep Mind accessing NHS health data), absorption into Google of NEST, with its [facial recognition technologies](facial recognition technologies)) and infrastructure deployment (eg [Google Fibre's abrupt departure from Louisville](Google Fibre's abrupt departure from Louisville)) to name a few.

If the Quayside project proceeds with Sidewalk/Alphabet/Google, Waterfront would face obvious reputational risks from closely associating with an enterprise subject to growing public skepticism. Furthermore, as a protector of the public interest, Waterfront will need to be wary of whether it will be able to hold such a powerful and assertive company to account. Fines and threats of litigation are

unlikely to be a significant deterrent, so stronger measures will be needed.

Beyond evaluating Sidewalk, Waterfront will need to carefully examine the wider Alphabet/Google enterprise for the implications it holds for Waterfront's oversight role. At this point, the weight of evidence does not encourage confidence in this regard.

***Summary Conclusions***

This preliminary analysis of Sidewalk Labs's suitability for the Quayside project offers five principal observations:

**First,** Sidewalk Labs has not established a strong track record as an urban innovator. It does not have a discernible history of leading an urban development project of the scale and complexity of Quayside, nor does it make the case for its ability to do so. Sidewalk Labs has assembled a multi-disciplinary group of talented urbanist and technology professionals, but this does not necessarily translate into an ability to build a viable urban neighbourhood.

**Second,** certain of Sidewalk Labs' core claims appear not to stand up to scrutiny, as discussed elsewhere in the DSAP report – including that the proposal was developed through a meaningful 'co-design process,' that Sidewalk Labs has adequately renounced "tech for tech's sake", and that "The project never really was about data".

**Third,** experiences with Sidewalk Labs to date should raise questions about whether they will honour their commitments. Sidewalk has repeatedly deviated from verbal or written commitments over the course of this project.

**Fourth,** notwithstanding claims to the contrary, Sidewalk Labs cannot be considered as an entity independent of its parent company – Alphabet/Google. At minimum, Sidewalk Labs should more clearly articulate its relationship to Alphabet/Google.

**Finally,** partnering or contracting with Sidewalk Labs may create significant risks for Waterfront Toronto. Aside from the reputational risks of close affiliation with Alphabet/Google and its associated controversies, it is unclear whether Waterfront Toronto will be able to hold such a powerful and assertive company to account.

There are many more issues than those addressed here that Waterfront Toronto will need to take into account in deciding whether to approve Sidewalk proceeding to the next stage of the Quayside project. However, it will be challenging to make a positive determination absent public evidence of a thorough, independent risk-benefit analysis of the prospective partnership or other contractual relationship.