ARTIFICIAL INTELLIGENCE IN THE CITY: BUILDING CIVIC ENGAGEMENT AND PUBLIC TRUST

COLLECTION OF ESSAYS

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ARTIFICIAL INTELLIGENCE IN THE CITY: BUILDING CIVIC ENGAGEMENT AND PUBLIC TRUST

Edited by Ana Brandusescu and Jess Reia

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INTRODUCTION

COLLABORATION, HOPE AND CAUTION FOR AI IN CITIES

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The emphasis on AI in cities brings governance and policy conversations to the local context. Our focus on cities is, simultaneously, a focus on everyday issues and a focus on hope. By starting this conversation with our peers, we want to share our successes and struggles, as well as build a platform for voices that need even more reverberation in current data and technology debates. These voices are key for discussions on the role of digital rights, data ethics, and governance in urban spaces – and more importantly, the role of people.

Why this symposium?

After navigating various challenging policy and regulatory contexts over the years, in different regions, we joined efforts to create a space that offers possibilities for engagement focused on the expertise, experiences and hopes to shape the future of technology in urban areas. The *AI in the City* symposium emerged as an opportunity to connect people, organizations, and resources in the networks we built over the last decade of work on research and advocacy in tech policy. Sharing non-Western and Western perspectives, the participants questioned, challenged, and envisioned ways public trust and meaningful civic engagement can flourish and persist as data and AI become increasingly pervasive in our lives. The day brought together a group of multidisciplinary scholars, activists, and practitioners working on a diverse range of initiatives to map strategies going forward.

We echo the importance of creating spaces for people, communities, ideas, and organizations that often do not have a seat at the tables where most decision-making on technology and data-centric systems occurs. The focus on civil society and academia was deliberate: a way to listen to and learn with people who have dedicated many years to public interest advocacy, governance and policy that represents the interests of their communities. Openness and inclusion are two guiding principles of this collective work – a product of an extensive network of collaboration and many helping hands.

Why AI in the city?

An entire logic of efficiency is dedicated to the production, adoption, and use of AI. This logic is a top-down approach to policymaking and geo-political influence that is revolving around national policy discussions. However, we believe it is in cities that a combination of infrastructures, regulations, and direct impact on people's everyday lives take shape. For instance, the smart cities agenda often follows a similar approach, with overlapping regulatory frameworks and corporate

stakeholders deploying data-centric systems in urban areas under the guise of efficiency.

To address these issues, we reflect on our existing work and collaborations. Over the years, we identified exclusive decision-making spaces – inaccessible to civil society and academia – and increasing industry-led policy and lawmaking of topics related to AI, smart cities, and IoT (Reia & Cruz, 2021). An examination of AI policy and public investments can help connect the dots between resources and key actors and entities (Brandusescu, 2021). Public procurement also can reveal issues with government processes, for example, the use of free trials in facial recognition software by local law enforcement (Stevens & Brandusescu, 2021). It builds on a narrative of efficiency intertwined with AI solutions that often goes unquestioned, automatically implying AI will be used for the public good.

If we look beyond the promise of efficiency, relevant debates on digital rights and climate justice can be left out of most policy and regulatory frameworks, or watered down to abstract ideas of sustainability, ethics, and responsibility. For example, the lack of a comprehensive debate on privacy and data protection in important international urban forums (Reia, 2019), despite years of evidence-based advocacy and Global South leadership in these areas. This raises concerns about whether or not citizen-centred decisions will be prioritized in plans to implement data-centric systems in cities. This process reflects the challenges with citizen-state participation, which is often limited to public consultations, the passive harvesting of public opinions, or freedom of information requests. Consequently, technology, AI and data governance urgently require voices of civil society-led initiatives and public interest actors (Brandusescu, Cañares, & Fumega, 2020; Reia & Brandusescu, 2021). At times, public input on the use of AI is non-existent. There also is a significant imbalance of power between the Global South and the wealthier nations of the North when it comes to deployment of data-centric systems (Reia & Belli, 2021). This demands more public participation and civic empowerment in technology and AI processes (Sieber & Brandusescu, 2021). For urban spaces, we need an alignment of research and advocacy agendas related to the right to the city, digital rights, and climate justice.

Why this collection of essays?

The collection of essays is designed to become a resource for a broad audience of people with different backgrounds, skills, and interests. From educational and research contexts to policymaking and activism, we hope the thoughts and strategies featured here will help us to reflect upon the challenges and opportunities of deploying data-centric systems in our cities.

Here we introduce perspectives from cities around the world, written by contributors from five continents. The collection is structured in five parts: (i) Meaningful engagement and public participation; (ii) Addressing inequalities and building trust; (iii) Public and private boundaries in tech policy; (iv) Legal perspectives and mechanisms for accountability; and (v) New directions for local and urban governance.

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1 | MEANINGFUL ENGAGEMENT AND PUBLIC PARTICIPATION

WHAT IS MEANINGFUL CIVIC ENGAGEMENT

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Civic engagement, empowerment, and public participation are terms usually used interchangeably and have recently become buzzwords used by researchers, policy makers, AI developers among others to describe any form of engagement or process of soliciting inputs, comments, feedback, etc. from the public. Civic engagement can be defined as political participation that enriches representative and participatory democracy by increasing the sphere in which citizens can exercise influence (Salinas et al., 2018, p. 2) or "a governing arrangement where one or more agencies directly engage non-state stakeholders in a collective decision-making process" (Ansell & Gash, 2008, p. 544). The processes and methods used for civic engagement vary. As can be seen, many of the definitions emphasize benefits to the state and thus have drawn questions around the value to citizens as well as the impact, meaningfulness and rigor of the engagement process. Others also question the real involvement of the public in some of these processes, that is, whether they are being tokenized and if meaningful action is taken on their inputs (Sieber et al., under review). In some cases, engagement looks performative or is used to check boxes, further jeopardizing the public who are usually affected by such decisions the most. Researchers have varied opinions on this.

Several researchers have highlighted that civic engagement is sometimes used to lend the appearance of inclusion without meaningful participation and sometimes feels like an "afterthought" or a "nice-to-have". There is also concern on whether the engagement is active or passive (Guenduez et al., 2020) and how that relates to meaningful engagement. For example: scraping citizen sentiments on policy issues from social media versus actively soliciting feedback on a public health project could fall under passive and active participation respectively. There are particularly discussions on whether passive engagement (where the public is not actively or consciously engaged) constitutes meaningful participation. Simonofski et al. (2017) argue that citizens should be considered crucial stakeholders and not passive consumers or producers of content.

Meaningful engagement is usually defined along the levels of power, control, and feedback the public has in the process as well as the stage they are brought into the process (Kalluri, 2020). For example, engaging people at ideation and design stages could be more impactful than at the end when the project is near implementation. Meaningfulness could be determined by the issue the public is invited to engage in. Contesting predictive policing is likely more potent than participatory budgeting. There is also "the how" of engagement, i.e. the process and the channel used for engagement. These channels usually range from digital approaches such as chatbots, data harvesting etc. to citizen juries, stakeholder working groups or roundtable discussions. Some approaches could be more structured and

in-depth whereas others could easily pass for daily interactions with citizens as part of regular government functioning and not necessarily meaningful participation. Finally, there is the question of who is involved. There are concerns about how categorizing participants according to their jurisdiction or citizenship could be limiting and exclusionary (Cardullo, 2020). As a solution to this, Vanolo (2016) recommends the inclusion of the marginalized, minoritarian or even subaltern, who are deprived of credibility and agency.

Some researchers have also recommended audit and assessment tools as a way to assess meaningful engagement. They are mostly evaluation (used at the end of the process) or guidance (used at the start or during the process mostly in the form of a checklist) tools. Some examples are Krafft et al.'s (2021) "Algorithmic Equity Toolkit" and Simonofski et al.'s (2017) holistic framework for smart cities. Several others have also proposed new structures and hierarchies of participation as a way to show that some types of engagement are more meaningful than others. They are similar to and mostly adaptations of Arnstein's (1969) ladder of participation. Cardullo and Kitchin (2019) propose a scaffold of smart citizen participation to measure citizen inclusion, participation and empowerment in smart city initiatives. Simonofski et al. (2017) similarly created a multi-tiered participation evaluation framework that groups citizens into 'democratic participants', 'co-creators' and 'ICT users'.

An observation worth highlighting from reviewing literature discussing civic engagement and civic participation is that there is a lot of talk about what constitutes meaningful civic engagement with very few recommendations on how to make this better going forward. Ultimately, many researchers acknowledged the importance of meaningful engagement to policy-making or decision making processes such as providing a better understanding of social needs, and divergent thinking towards the solution of complex problems that potentially leads to improving government's outcomes (Salinas et al., 2018). Another thing missing from the conversation is how engagement is beneficial to the public and not just the government. There has to be more practical strategies on how to empower the public in the process to make civic engagement more meaningful.

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CIVIC ENGAGEMENT, INCLUSIVE DATA AND AI: SOME QUESTIONS TO BE ASKED

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In 2013, Tim Davies and I wrote about civic engagement and Information and Communications Technology (ICT) innovation, highlighting the levels of inequality of access to ICTs (Davies & Fumega, 2014). We found that:

» the available analysis suggests that more educated and higher-income segments of the population are more inclined to engage with ICT-led interventions (Anduiza, Jensen, and Jorba 2012; Kuriyan et al. 2012; Margolis 2007). This is perhaps not surprising, as the affluent and educated are the most likely to be comfortable with technology, to have access to the Internet, and to engage with applications frequently; they are also more likely to participate in politics (Escher 2011).

Almost a decade later, reality has not changed that much. The main difference is the amount of time and knowledge we are dedicating to looking closer at all these aspects related to inclusion in our data, in our algorithms, in fact in the whole chain of ICT-facilitated public decision-making processes. We are much more conscious, as people working with data for public good, about the questions we need to ask ourselves (Global Data Barometer, 2022).

Acknowledging this background, we have to be very clear about what type of participation we are aiming for, and I'm talking about participation and not just consultation over a decision that was already made. Also, what type of informational resources are used to make public decisions, as well as what safety precautions are being taken to safeguard people, communities and their data.

For example, information is the main resource for decision-making and information is built with data. I am wondering who is counted in the data, which part of the population is left behind or made invisible? Therefore, which problems are we not discussing as they are not part of the information we have regarding certain issues. Furthermore, it is important to check the biases included in data production or in algorithm design. These biases manifest in different ways, they could be cognitive biases (a particular characteristic of a subject, which affects the way they perceive reality) or, when talking about AI, algorithmic biases, which are systematic and repeated errors that create unfair results, such as arbitrarily granting privileges to a

group of users, over others. (see Brandusescu et al., 2020). These biases could be identified at different stages of the data production processes, from problem definition to data collection, preparation, and finally when data is used and you realize that something is off (sometimes a little late).

Moreover, there are other questions to ask public sector organizations when implementing an AI tool (machine learning, probably) that will affect large portions of the population, but in many cases, we found that companies that sell these products and technology solutions have more resources available than the clients they serve. We need a better synergy between organizations with high levels of understanding on this topic and the public sector organizations that are acquiring these products. Also, there is a need for transparency in that process, if not that synergy will be worthless.

To sum up, we need to be aware, when discussing AI technologies for public decision making, about all the stages in which these tools and the data that serves as input could impose harm or make invisible certain parts of the population. Who is participating, on which topics, what are the available resources to make informed decisions, do we know all aspects of that problem or are we just looking at things through "the usual suspects" glasses? Are the channels we are providing for people to participate the right ones for all the groups we want to address? And finally, is the data that we are using counting us all, or just a small portion of us? These are just a few of the long list of questions that we need to keep discussing and taking into account in the years to come.

At the end of the day, these kinds of concerns are important because these biases affect people's lives. We are still learning to deal with prejudices and biases and mitigate them. There is a long way to go, but the first step is to become more aware of these dangers and implications.

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A LATIN AMERICAN PERSPECTIVE ON ENGAGEMENT WITH DATA AND AI

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The promise of AI as transformative technologies that can improve the lives of citizens is ever-present in the discourse of authorities of developing countries, including those in Latin America. However, from a civil society perspective, it is difficult to share the enthusiasm: along with the "solutions", the arrival of AI technologies to our cities and countries brings home many of the concerns around its human rights impacts, with even less opportunity for transparency and accountability, and few material benefits that match the profits of large technology companies.

This broad array of concerns is more salient when these advanced data technologies are used in the public sphere, as part of new or existing public policies. From a public interest standpoint, it is here that advanced technologies present more risks, but it is also an opportunity to seize, as a precedent for inclusive policy development. This requires addressing some key concerns.

First, we need to acknowledge the differences between north and south. A few countries and a few companies hoard the material benefits of the AI economy, while developing countries are kept as sources of data (the key ingredient for these systems) or as consumers of advanced technologies. This creates several disadvantages for majority world countries, including developmental and economic disparities, and is a barrier for transparency and accountability. If there is neither adjustment of these technologies to public priorities nor opportunities to engage with the design or rationale of their use, it becomes difficult for organized civil society to treat the deployment of these technologies other than with skepticism and distrust.

Second, we have seen the growth application of advanced data technologies in the public sphere in areas where there are sensitive aspects of human lives that can be disproportionately affected, not only because of faulty technologies, but also when they work as expected. The work of civil society documenting these cases (Derechos Digitales, 2022; Coding Rights, 2022) show that their use tends to aid ill-designed public policies. Not having proper frameworks for accountability means handing over to chance the possibility of deeply affecting individuals and groups of people disparately and disproportionately. One important element in the search for proper frameworks can include empowering public entities to assert their own regulatory power and its enforcement, in other words, to rise up to its duties of protecting the population from the risks of its own action and inaction.

Third, the need for meaningful engagement is not one that will necessarily be met by the will of public officials or the executives of private companies providing technologies. The current landscape of institutional approaches to civic participation is frequently insufficient to address concerns from different stakeholders in a meaningful way. Although the call for inclusive policymaking processes on AI in Latin America is well documented (Venturini et al., 2021), it remains one of the areas where proactive outreach by different communities of interest is necessary. In other words, it is a space of struggle for democratic AI governance, where the creation of avenues for participation may never come from the initiative of policymakers. This can seem applicable to many other areas of public policymaking, including those related to information and communication technologies (such as cybersecurity, platform regulation, data protection law, et cetera), however, the transformative nature of AI and the pervasiveness of the risks of human rights from data-intensive technologies seems to require a more active intervention, outside institutionalized channels, for civil society. This is a larger democratic challenge of inclusion in public policy, especially with regards to citizens and communities other than those that are already invested in data governance or technology policy. There is a role for civil society and academia in highlighting the issues at stake, and leveraging what the concerns are.

What is needed from these different, interconnected concerns, is a common set of rules for all the world, rooted in a common view of fundamental rights, that includes the respect for human rights and democracy, as well as the recognition of advanced data technologies to generate prosperity in a way that benefits everyone. New norms should consider all of those as goals worth pursuing simultaneously.

Yet one point is worth revisiting when discussing the challenges for meaningful engagement with AI and data governance. While there are differences in the way that the conversation around AI happens in different places of the world, holding power accountable is a common interest to all citizens of the world, and global norms can help.

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AI NEEDS INDEPENDENT COMMUNITY ORGANIZING TO ADDRESS COMPLEX SOCIAL PROBLEMS

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Community organizations have expressed a fair amount of skepticism towards proposed AI solutions to complex social problems, and rightfully so. Numerous reports document cases where AI applications have led to more bias and discrimination and other undesired outcomes (Benjamin, 2019; Noble, 2018; O'Neil, 2016). In many cases, the answer will remain to not build it. But if there is to be a chance for AI to actually contribute to a more just and equitable society, its proponents have to start recognizing and relying on the vital expertise of community organizations.

At the turn of the century, community organizations in Quebec mobilized to receive more recognition and stable funding from the state for their work. The provincial policy that came as a result of this struggle can help us understand what community action - especially independent community action - contributes to society at large and more specifically why independent community organizations should play a crucial role when it comes to questions of AI procurement and policy.

In the 2001 policy "Community action: a crucial contribution to the exercise of citizenship and the social development of Quebec", community organizations are defined as non-profits that are rooted in a community, have a democratic and associational life and are free to determine their own mission, approaches, practices and orientations.[1] In this policy, the Quebec government recognizes that the community sector contributes significantly to expanding Quebec's democratic sphere and to the socio-economic development of society. Community organizations not only are spaces where emerging realities are being discussed, but also spaces where novel practices are designed and implemented. They are valued for being a sector from which innovative civic participation emerges by the very people who are experiencing the problems they are trying to solve.

The policy makes a distinction between community organizations at large and independent community organizations. In particular, a closer look at what characterizes independent community organizations can give insight into why their involvement in policy and procurement processes around AI is crucial, especially if they are to address complex social problems.

1 French version of the 2001 policy.
English version of the 2001 policy.

Created through community initiative, independent community organizations are mission driven and social justice oriented. While their mission may be very specific, their view of issues at stake is comprehensive and they apply broad-based approaches and civic practices. Being governed by Boards that are independent of the public network, they ensure their independence from funders. Independent community action and organizing, whether incorporated and recognized by the state or operating more informally, is based on the belief that the people experiencing a situation should be involved in developing solutions as they have a unique point of view in understanding their situation and are likely to bring innovative responses to it. Often through the tools of popular education, independent community action has fostered approaches like transformative justice practices developed by women who have experienced sexual violence. Through its policy, the Quebec government recognizes that community organizations hold an important key to remedying complex social problems. Being rooted in affected communities, they bring unique knowledge, experience and approaches to the table.

The broader AI community needs to recognize that involving independent community organizations in conversations from problem definition to implementation and remunerating them for their contribution is not just a question of political correctness or social accessibility. It is a condition for better understanding the complex social problems that need to be solved and for coming up with novel and effective answers that can actually improve the life of those most affected. To say that affected communities lack technological literacy to engage in these processes is a smokescreen and actually contributes to their marginalization.

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CIVIC ENGAGEMENT IN THE FACE OF POLITICAL ECONOMIC BARRIERS

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When considering the question of meaningful civic engagement, a point made by Mich (Michèle) Spieler in the symposium's second panel stuck with me. Spieler explained that when having these discussions, we must decentre the technology and centre the community. It is an important point because it illustrates a common problem that arises when considering approaches to the regulation of technology, including those targeted at urban settings.

Too often, products, services, and larger systems being deployed by companies that claim to be part of the technology sector are not expected to prove that they can deliver the benefits that they promise will be realized if they are allowed to proceed — or, indeed, to not have an existing deployment restricted after it has already begun to operate without authorization. It is assumed that new technologies will deliver exactly what self-interested executives say they will, despite the overwhelming evidence that marketing claims rarely reflect the final outcome. There are many examples that can be cited, but one that has been prominent in my research is Uber. As it rolled out its ride-hailing service, its executives made many claims about the socially beneficial outcomes it would deliver, including traffic reductions, increased accessibility to transportation for underserved groups, reductions in car ownership, and better conditions for workers than the existing taxi industry. While it did deliver a convenient booking experience through its smartphone application, it largely failed to deliver on the rest; instead, it contributed to increased traffic congestion, higher transport emissions, and disproportionately served young, college-educated, urban-dwellers earning over US$75,000 (Marx, 2020). It did not make transportation more efficient and equitable; it did the exact opposite.

There are many factors that can explain this occurrence. The most immediate is the long-term reorientation of urban governance under neoliberalism to prioritize the capital accumulation strategies of private corporations over the needs of the public (Harvey, 1989), and its specific form in the years after the financial crash as many city governments, especially in the West, made investments to attract tech companies as a means to drive urban growth (Zukin, 2020). Whether that has been a successful strategy for many of the cities trying to pursue it is another question. But one could also look to much more deeply ingrained beliefs that assume the development of new technologies and their widespread adoption are what deliver social progress, rather than the social control and degradation of worker power that is often observed after their use becomes widespread (Noble, 1995).

Clearly, these views on technology and the deeper political economic realities that enable them must be challenged, but ensuring that technologies

are serving the needs of the community — and, indeed, are only implemented when their necessity is first demonstrated by the community — would at least go part of the way to addressing aspects of these problems. We already know that public consultations on technology deployments often provide little real voice or power to the public, if they are held at all. The sham consultations on the Sidewalk Toronto project are one obvious example, but even where they are held in earnest, they are often designed in a way that limits the public's ability to stop the deployment outright.

In the transportation space, proposals have been made for a "mobility justice" approach that ensures policy and planning centre marginalized groups, and that decision-making processes are redesigned to provide more power to those groups and to ensure they can effectively participate, given existing social and economic barriers (Sheller, 2018; Untokening Collective, 2017). These would be steps in the right direction, but if we have learned anything from the opposition to Sidewalk Toronto, Amazon's HQ2 in New York City, proposed Apple Stores in the central squares of Stockholm and Melbourne, and plenty of other examples, forcing governments to act will require an organized public that can exert its power, not waiting for those governments to first put in place the proper structures to enable it.

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RAW POLITICAL POWER IN CIVIC ENGAGEMENT WITH AI

Renée Sieber
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This panel is about meaningful participation but what meaningful is might be in the details. Defunding the police is one such detail. If we had a sufficient amount of political power then we could say "No facial recognition technology (FRT) used by the police in the city." Period. Then part of meaningful participation might be compelling the city to audit the AI system used by municipal police. "Company x, we have to be able to audit your algorithms to ensure that the software you already have does not link to Palantir or Clearview AI, that you do not have FRT in your tech." "Police force, if you cannot audit then you can't have the funds to spend on the tech." That's where I am at in terms of "meaningful". I don't know if it can be answered in the aggregate, in the abstract. It can only be answered in the details.

In terms of who participates, we talk about civil society involved in decisions about AI. I am always struck by the concept of being civil. I think that sometimes "meaningful" participation means rejecting the framework of participation that is offered by the city; it means not being civil. Panelists have all been very polite but we may need to be a lot more radical than we are. If we look to social movements of the past, they have often been far more radical. Indeed, we've often white-washed social movements to make them appear polite and civil. Researchers are re-examining black abolitionists of the past (Jackson, 2019) and finding that black abolitionists were not the polite pacifists that make us white people comfortable. Instead they used violence tactically. To counter the more destructive elements of AI, maybe we need to do a little bit of vandalism. I do not want to shock too many people but we may need to go back to our roots of community organizations. That is why "Defund the Police" challenges the frame of a civil society.

Finally, to be meaningful, we need to examine where we are participating. We hear in the Fairness, Accountability and Transparency (FAccT) AI community, the researchers and practitioners who look seriously at AI Ethics, that governments are irrelevant to public engagement. In other words, "why are you focusing on civic participation vis-a-vis local governments or subnational governments? AI is transjurisdictional. It is global. You should instead look to the European Union or to the World Economic Forum. Or you should participate in an AI ethics panel at Google or boycott Facebook. You should not be talking to governments at all, you should be talking to the private sector." Let's look at the impact of public participation in a city's AI systems, the NYC taskforce on auditing algorithms in NYC. It was not ultimately successful and there were significant problems in the public participation component of the task force (Richardson, 2019). However, having a task force at all and having civil society participation in that task force were huge shocks to the private sector. Similarly, a coalition comprised of the independent body, the UK's Information Commissioner's Office, a civil society organization called Big Brother Watch teamed up with students and parents to halt the use of Clearview AI in a Scottish school district to which the head of

Clearview AI argued that it was a shame the UK did not want to protect children, seniors and other victims of unscrupulous acts (Dent, 2021).

This dramatic backlash from companies signals that meaningful participation – by that I mean engagement that is actionable – can shock the system. However, it does require accruing political influence to counter the massive influence of the private sector. We can do meaningful participation, accrue raw political power and enact political change even against actors who have significant resources, and appear immune from accountability.

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AUTOMATION IN MUNICIPAL PUBLIC CONSULTATION PROCESSES

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Much attention is focused on technology-enabled advanced computing and automation in health care, manufacturing, and finance. More recently, we are seeing community members, practitioners and scholars focus on how AI is being used in urban and community settings including in public participation efforts hosted by local governments for their residents.

Natural language processing (NLP) is now being used by government staff to help them process inputs into public consultation efforts. These consultations can generate written public feedback which is labour intensive to evaluate and the private sector is using this technology to advance the use of NLP: "Government agencies are awash in unstructured and difficult to interpret data. To gain meaningful insights from data for policy analysis and decision-making, they can use natural language processing, a form of artificial intelligence" (Deloitte, 2019). The Privy Council Office of the Government of Canada working with Open North experimented with using NLP to analyze public feedback in 2016 on national security laws (Government of Canada, 2020).

Local governments are legally required to consult the public on a wide range of municipal matters including land development projects and changes to policies. And beyond the legal requirements, in communities across North America there are numerous public consultations underway weekly to consult the public on a wide range of local issues. Some municipalities are experimenting with the use of NLP tools to help them make sense of the feedback. The introduction of this technology as an intermediary step between people and City Hall raises the question: is there a civic obligation to disclose when public input is being filtered through automation?

Local governments use a range of techniques to consult and engage their residents on policies and projects under consideration. Townhalls, public meetings, polls, and surveys - whether in person or virtual - are commonly used. As resident-city hall interactions become more technologically enabled, researchers are asking questions about whether this technology use tilts these relationships towards being more transactional (Johnson, Robinson, & Philpot, 2020). The International Association for Public Participation (IAP2) spectrum frames 5 forms of public participation: inform, consult, involve, collaborate, and empower (International Association for Public Participation, n.d.). It's harder to achieve the more robust and inclusive forms of public participation when technology use is making these relationships more transactional.

Residents have some experience with the use of automation and NLP in their city hall interactions through chatbot deployment in municipal 311 services. It is common for there to be multiple 311 channels in which residents can phone, email, tweet, or use a chat function. Some municipalities

are transparent about the use of chatbot technology behind the scenes by including text like "powered by Xchatbot" in the chatbot window. This transparency is important: consider how our own behaviours change when we encounter an automated voice or text attendant. We might frame our query differently. Automation can be effective for simple or factual requests but less effective for more nuanced or complex matters. When we encounter the automation, to avoid frustration, we might seek the bypass to a real person. These kinds of reactions are not aligned with meaningful public participation or trust building between residents and city hall.

When people participate in a public meeting or town hall or write to their councilor, it is likely they expect their input to be received and considered by a person, not an AI enabled software tool. Learning after the fact that their direct feedback was not considered by a person has the potential to undermine trust in the decision making process.

Research abounds about the biases embedded in algorithmic decision-making (Broussard, 2018; Buolamwini & Gebru, 2018; O'Neil, 2016, among many). Municipal decision makers need to think carefully about the embedded bias in the tools they are considering deploying. At a time when local governments are facing budget cuts and staff constraints there might be a temptation to embrace automation to reduce costs. But public participation processes are important investments in local democratic decision making in terms of inclusion and accountability. Investments are important because the voice of the public in shaping decisions is vital.

When the time comes to plan public participation activities, local government staff need to think actively about how their choices of technology tools will impact the quality and integrity of the public participation process. Before jumping to using automation to process feedback, staff should consider whether there are other tools and techniques available. If these tools are needed, municipal governments should consider being transparent about their use of automated tools in the processing and analysis of public inputs. And given that these participation activities are often outsourced to consultants, disclosure about the use of these kinds of tools should be a requirement in the procurement process as well.

At a time when there are already low levels of public trust in government, local governments must be careful that their deployment of technology tools does not further erode the quality of public participation in their processes and more broadly public trust in local government democratic processes.

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MEANINGFUL OR MEANINGLESS: PUBLIC CONSULTATION ON AI TECHNOLOGIES

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A challenge repeatedly raised by panelists throughout the conference, particularly Pamela Robinson, is the tension between the fast development and deployment rate of AI technologies and the careful, slow-moving process of building community in order to level a response. This dynamic is particularly apparent within public consultation processes surrounding the use of AI technologies. From my participation in the conference, my own work in organizing the Disrupting Disruptions: the Feminist and Accessible Publishing, Communications, and Technologies Speaker and Workshop Series, and writing Engage in Public Scholarship!: A Guidebook on Feminist and Accessible Communication (2022), I offer a few reflections. As Caroline Running Wolf and others cautioned, building trust in a community requires time, listening to when people say "no," accepting that "no," and investing in long term relationships. These characteristics are missing in many public and community consultation processes and lead to a lack of meaningful civic engagement. As Ushnish Sengupta explained, the word 'meaningful' indicates ability to change the implementation of tech or decide not to use a particular technology at all." Public consultation or community consultation (which are not the same thing but are often used interchangeably) often occur too late in the process of deploying or developing AI technologies. By embarking upon civic engagement processes so late in the process, the ability for the public to respond will be limited. When consultation comes at a late stage, the process becomes more about theatre or trying to convince people to accept an already developed technology. If consultation only occurs after contracts are signed or technologies are in use, as Silvana Fumega explained, this faux consultation merely seeks to legitimize "results, products, and policies that are already designed and ready to be implemented." Here is where the difference between public and community consultation is important. Although building meaningful community engagement takes time, this work does not have to start from scratch for every response for every AI technology; the wheel does not need to be reinvented. What is evident at this conference and in my own organizing, is that a vast number of community and activist organizations already exist across the world. By working across, with, and between already established communities and organizations, responses can be leveraged at earlier stages. In addition, communicating these challenges and

initiatives with the public through a wide range of formats is necessary. Relying on solely one platform for communication limits participation. Consider a mix of online and offline options. Utilizing the platforms and formats that your target audience already uses is more likely to yield increased participation. However, if public or community consultation is sought in bad faith and is merely for appearances, communities and organizations' involvement could be tokenized, as Petra Molnar shared. Meaningful public and community consultation surrounding the development and deployment of AI technologies will only be possible if those seeking consultation are actually willing to listen. Otherwise, as Renée Sieber indicated, other means of resistance will become necessary.

2 | ADDRESSING INEQUALITIES AND BUILDING TRUST

WHEN LOCAL AI CREATES HARM, WHOSE VOICE REALLY MATTERS?

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When something goes wrong with a new AI technology, community members have few ways to convince city decisionmakers to make a change. But often, they can influence procurement by getting the city to cancel their contracts with tech companies or update their terms to mitigate harm. However most cities' procurement processes are opaque and hard to understand, which can leave very few openings for meaningful public participation. And when the general public does learn about the harmful impacts of a new technology their city has procured, it is usually *after* something bad has happened (BBC, 2020).

Local governments often do not have protections in place to help people who are discriminated against or otherwise negatively affected by harmful AI. And they lack the digital rights infrastructure that would invite people to protect their own data rights, give consent, or leverage their agency to participate in local governing.

In the United States, cities are signing contracts with AI-driven tech companies like ShotSpotter, Inc. without much, if any, pause to understand the potential risks and biases of the technology.

ShotSpotter provides cities with audio surveillance technology that uses AI to identify gunshots in predominantly Black and Latinx neighbourhoods (MacArthur Justice Center, n.d.). The company says the technology is 97 percent accurate at identifying gunfire, but studies have found that police fail to find evidence of gunfire at the site of ShotSpotter alerts 86 percent of the time (Schuba, 2021). On top of that, the system's AI is still confused by construction and fireworks (Sandoval & Holliday Smith, 2020).

Michael Williams, a 65-year-old man living in Cook County, Illinois, was jailed in August 2021 after being accused of killing a young man according to ShotSpotter technology. Williams denied the prosecution's claims, which used video footage of a car driving through an intersection paired with audio recordings from ShotSpotter to make its case. Williams told Associated Press (2022), "I kept trying to figure out, how can they get away with using the technology like that against me? That's not fair." Months later, a judge dismissed his case for lack of sufficient evidence.

Regardless of the substantive criticism from journalism, research, and activism communities and overt risk of harm, lawmakers seem dead set on investing in this technology that promises a catch-all solution to gun violence through the magical power of AI. They continue to sign contracts with ShotSpotter to install sensors in neighbourhoods.

ShotSpotter leverages extensive public relations to get in front of local governments. They celebrate lucrative wins in their quarterly earnings calls when

they acquire new city clients. Despite the fact that using AI for policing spells clear risk to residents, local governments parrot the company's celebratory talking points during their public consultations.

The people who are overlooked when the city sides with ShotSpotter executives are the people who are directly affected by the use of their technology. Many people in Black and Latinx neighbourhoods that are surveilled by ShotSpotter devices already face the risk of fatal police encounters (Desilver et al., 2020). ShotSpotter alerts mean more police interactions, which expand the reach of the criminal legal system in neighbourhoods. If people who were being incarcerated as a result of ShotSpotter alerts had a voice to stop the punitive use of this AI technology, what would they say? Would local governments listen?

People who are directly affected need a voice in decision-making about the use of AI technology. And city decisionmakers must accept that this might happen outside of the predictable bounds of state-sanctioned public consultation. Cities need more open and participatory procurement and community engagement processes to ensure that people can stop bad things *before* they happen.

Legally, there is still a lot cities have left to build before people can reclaim control over their personally identifiable information. What if people could withdraw their consent for the use of their data by publicly contracted tech companies? People would have real leverage to make technologies that they deem harmful functionally ineffective.

Without real leverage to shift the incentives behind the deployment of AI in cities, the people will always be on their heels, left to respond and react without any power to influence the city's next steps. We owe it to future generations to build stronger local digital rights now. We owe it to the people who are already being surveilled, punished, and harmed due to the use of AI.

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CAN I TRUST YOU? TRUST IN PUBLIC ENGAGEMENT AND CIVIC DISCOURSE FROM A GENDER PERSPECTIVE

Chenai Chair
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The discourse that shapes technology being implemented, determines who is being invited into the trust circle – to interrogate the new tool vs who is expected to trust it from a place of "it is there and one must deal with it". AI discourse in the African region often focuses on (i) its capabilities - the growth of economies, increase in production, reduction in labour costs etc. and (ii) the regulation of data processors and data controllers and the ways in which people's data can be protected in order to give effect to the rights of privacy and access to information (Chair, 2020). Public trust in this instance seems to be focused more so on those who will build the AI, implement it into their systems - those asked into the trust circle to interrogate the new tool.

However, we exist in unequal societies often shaped by gender, sexuality, class, educational background, income, where you stay, how you speak and the colour of your passport. Those who exist at the intersectionality of this inequality are often the ones expected to trust the new technologies. Trust in public engagement, requires a focus on existent issues of inequality and assessing how new technology engages with these issues in order to build a semblance of trust.

Gender and sexuality, are particularly important for me as often time women, gender diverse people and sexual minorities are expected to trust public institutions, yet these are the same institutions that fail them. Conversations around new technologies often do not take into account the existing inequalities that leave women and gender diverse groups reluctant to trust public institutions. Issues around gender and sexuality often become add-ons to the discourse of new technologies.

So how can we build trust in public engagement from a feminist perspective? The conversation needs to be located in context. Context guides the issues of mistrust that need to be addressed in order to build public trust and civic engagement. If new technologies, policies and regulations are implemented without context – communities would be reluctant to engage. Data feminism highlights a need to engage with power – to examine the way in which power operates and challenge power by pushing back against these power dynamics towards justice (D'Ignazio and Klein, 2020).

Building trust and civic engagement can be meaningfully achieved when we break down existent power structures that determine whose voice and opinions are valued in conversations. We also need to think of building public trust from a perspective of communities having agency to

respond to the issues at hand. The question to ask in this instance would be – are we actively engaging with groups that experience inequality to help shape trust, or are we taking a prescriptive approach that they must simply trust the technology. Public awareness goes hand in hand with supporting agency – there is a need to invest more in building up the understanding of AI so that people can meaningfully engage in the conversation that impacts their lives in contexts of inequality. These processes need to be documented together with where AI is being implemented for people to be able to be resourced to build up their agency. Lastly, the focus around building trust should also be with those who work on localized innovation. It is easy to focus on big tech, however, building trust should also be with innovators.

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FEMINIST CITIES AND AI

Ingrid Brudvig
Women At The Table

Governments, hand-in-hand with private companies, are rapidly driving ahead digital agendas and AI solutions as blanket remedies to complex historical and institutional problems – failing to consider the significant risks of these technologies for human rights, gender equality and democracy. This stifles the creation and emergence of feminist, sustainable cities for several reasons.

AI systems are often built and sustained by biased data and models that reproduce stereotypes and old assumptions about gender, race, class, geography and other socio-cultural and demographic factors.

AI is also quantitative – based on measurement and logics of classification as code – the same administrative and scientific classificatory systems that fueled colonialism, imperialism and patriarchy – and leave little room for flexible identities, diverse knowledge and worldviews. The lack of transparency and explainability of these systems makes them opaque to the general public.

AI systems, by nature of data based on binary code, fail to consider historical, political and economic contexts in which they are embedded, and where their existence cements legacies of injustices into the present.

AI also accelerates extractive economies at scale – rewarded as enhancing 'productivity', and measured by economic markers of growth which provide the rationale for e.g. translating bodies into data to feed "smart" cities and the digital economy.

AI is increasingly applied to public governance such as through facial recognition systems, biometric data collection, border policing and law enforcement. As a result, AI decision making systems increasingly shape citizenship – used to police the boundaries of inclusion and exclusion, obedience and disobedience, good citizen and bad citizen - reproducing historical injustice and inequalities, and shaping access to human rights and personal and collective sovereignty in the public sphere - based on automated discriminatory systems.

Growing normalization of the "digital citizen" is intertwined with wider forces of power and processes of neo-liberalization and state restructuring (Schou & Hjelholt, 2018) – with the turn towards market-oriented development and individualized (over collective) governance structures. Citizens are "expected to be and act digitally [...] governed through a combination of discursive, legal and institutional means" (Schou & Hjelholt, 2018, p. 510).

Complex social, political and ethical decisions shaping the future of citizenship and the lives of billions are, therefore, in the hands of a few – increasingly governed by machines, and automated without democratic consensus or personal consent. The proliferation of AI systems affects not only human life at this time, but ecological systems and the wellbeing of the planet.

Given this predicament, I question – for feminist cities to thrive in reality – what is needed for AI-technology to go beyond "do good" morality, and instead uphold human rights, social, gender and climate justice through an ethics of care – in which consent, personal autonomy and disobedience exist in harmony with digital tools?

To create and sustain a vision for feminist cities and AI based on trust, data scientists, machine learning experts, AI governance and development communities must critically question old assumptions implicit in data, systems and knowledge paradigms that underpin the design of tools. Interdisciplinary inquiry, such as from the humanities and the creative arts, provides spaces for critique and revisiting humanism, necessary to enhance public debate on AI tools.

To counter the current and prospective harms wrought on society by AI – it is urgent for grassroots and policy dialogues to come together to reflect critically about how, where, and through whose bodies does technology create new avenues for power, surveillance, bio-political governance and mechanisms of social control. This requires, firstly, determining parameters for ethical informed consent within AI.

Consent is not linear, but an ongoing process of building trust, which may include a) revoking tools or systems that are not democratically agreed upon; b) opening up spaces for local creation of new tools and systems; c) decentralized governance or custodianship of data and knowledge systems; d) inclusion of local leaders in decision making; and e) interdisciplinary collaboration in spaces of technology creation, policy and decision making.

Radical convergence of communities is needed, both in and outside of cities, to design inclusive, feminist methodologies, models and technologies that are based on an ethics of care, consent and reciprocity, participation and belonging; to counter unsustainable, unaccountable systems of extraction, domination and separation increasingly imposed by new technologies; and to create sustainable, inclusive, resilient, feminist cities.

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NO TRUST WITHOUT US: BUILDING PUBLIC TRUST IN AI IN AFRICAN CITIES

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Introduction

The AI in the City Symposium reflected upon the significance of civic engagement and public trust as emerging AI applications are rolled out in cities across the world. These applications could include surveillance of populations through closed-circuit television (CCTV) cameras, automated decision-making in the provision of social services and the regulation and monitoring of traffic flow through cities. The discussion centred around questions on institutional trust, public engagement and knowledge sharing.

As the founder of Pollicy, a feminist civic tech collective in Uganda and a Mozilla Senior Fellow on Trustworthy AI, I reflected upon the dialogue and questions from an East African perspective. Currently, the application of AI systems is still in a nascent stage in the region, and large proportions of the population remain disconnected. In addition, available data and data sources are largely insufficient to meet the significant needs of AI development.

Who has a say?

The methodology and procedures involved in the procurement of technological systems by governments have been known to be murky. In addition, these procurement exercises and the systems themselves are then rolled out without any form of public consultation. In one case, the Minister of Ethics and Integrity of Uganda procured what was dubbed the "pornography detection machine" from South Korea to conduct mass surveillance of devices to identify any form of lewd and offensive content, which could, in turn, result in up to 10 years imprisonment (Koigi, 2016). The final outcomes of this exercise remain unknown.

The Ugandan government similarly carried out other initiatives such as the rollout of digital IDs and installing CCTV cameras across Kampala without public consultation, rights-based tests or risk assessments. In 2021, a Russian company named Joint Stock Company Global Security was awarded a 10-year contract to install a digital monitoring system in all motorcycles and vehicles in Uganda (Musisi, 2022). The company was later found to be facing bankruptcy litigation in Moscow. This particular sequence of events brought into question what due diligence and compliance frameworks existed and the sourcing and procurement of specific technologies.

The situation becomes particularly concerning because of the significant potential to negatively impact marginalized groups across the spectrum of class, politics, sexuality, ethnicity, gender, etc. These groups are rarely consulted about the procurement or management of new technological platforms.

Trust and Accountability

It is also important to understand what kinds of applications of AI are rolled out in these cities. So far, key functionalities by governments tend towards surveillance, control and punitive measures, despite significant strides by academia in using AI for health, agriculture and effective use of resources such as water and energy.

Furthermore, building trust and pushing for the accountability of AI systems is hindered by shrinking civic spaces in many of these contexts and further exacerbated by governments seeking to control growing dissent amongst the population through such AI applications. While countries such as Uganda and Kenya have passed data protection laws and are developing data protection commissions, it will be interesting to see how these laws are differentially applied to the private sector versus state actors.

How do we build public trust?

There is a pressing need to make space for an ethics and risk-based discourse on how new technologies are adopted and from whom and how they will impact the citizens within a city. This includes educating populations on what AI is and the benefits, implications, and risks. Public education on AI should be followed by public consultations with civil society, academia and indigenous private sectors, without the meddling of foreign donors or development partners and foreign tech interests.

Finally, there is a need for AI governance systems for the continuous and iterative monitoring of the performance and subsequent adoption of these technologies.

Conclusion

With time, AI systems could improve living conditions in congested cities by focusing on air pollution, traffic control, resource allocation and so on. However, significant resources, knowledge sharing, public consultation, and government commitments will be needed to ensure AI is used for positive purposes. We are just not there yet.

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INCLUSIVE AI IS NECESSARY: CAN IT BE ACHIEVED?

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The rapid development and investment in AI technologies have necessitated the need for Big Tech companies and governments to develop inclusive and ethical principles[2] and frameworks to guide the designing and deployment of AI tools. Most of these principles focus on transparency,[3] fairness, inclusion, accountability, and privacy.

As governments and businesses continue to figure out how to develop inclusive AI technologies, there is an increasing concern that AI will not benefit everyone (Berkman Klein Center for Internet & Society & MIT Media Lab, n.d.). One major obstacle is that AI technologies are designed and deployed in a manner that is not ethical, inclusive, or thoughtful; they have limited appropriate safeguards and few frameworks exist for auditing biased algorithms. What is more worrying is that current AI models are built on existing structural inequalities – yet AI innovators are using simple algorithmic tweaks to fix the inclusivity problem. For example, about 78 percent of AI professionals are men which reinforces existing social biases embedded in AI systems, creating adverse effects for other sexes in their search to access opportunities (Pande and Shreya, 2021).

AI is not reducing inequality

To divert discussions on the issues of AI and its effect on inequality, some technologists have hinged the rising inequality on the effect of globalization, but the major factor has been the result of technological change (Qureshi, 2019). The fundamental problem is that the big players behind the development of AI technologies have assumed a capitalist - winners take it all - perspective instead of the historical egalitarian collaboration tenets (Pitt, 2016).

Currently, there is an ongoing fierce race among big AI companies and countries to dominate and invest in untapped markets across the globe. For instance, the dominant players in the AI ecosystem in Africa are not local tech companies, but Western multinational tech giants such as Google, Facebook, Microsoft, IBM, etc., investing and leading AI research and innovation centers and hubs across the continent. As a result of their profit-orientation, they do not develop AI technologies with and for low-income communities and low-skilled markets (Yeboah, 2020).

How do we get there?

There is a need for a holistic approach to ensuring that AI systems, products and policies are designed with and for people across all dimensions of diversity – age, disability, gender, race, ethnicity, language, economic status, sexual orientation, and neurodiversity (Srivathsa, 2022).

2 See, for example, Google's Responsible AI practices.
3 Facebook's Five Pillars of Responsible AI.

Governments should look beyond creating narrow policies which focus on increasing tax revenues and technology transfer. Rather, they should develop policies that create an open and fair market playing field to avoid the growth of monopolistic structures that stifle the growth of local AI innovators and that limit access to data (Pitt, 2016). Also, such policies should address the digital skills gap that exists in marginalized communities.

Multinational corporations have a key role to play by developing AI technologies for marginalized communities at ultra-affordable prices, which will allow the masses to increase their purchasing power and improve living standards (Pitt, 2016). This will create new opportunities for gainful employment, especially in the informal sector, which will increase their incomes. Big Tech companies should invest in developing AI technologies that allow people who cannot read and write in English access a variety of AI tools in their own language to assist their daily work.

For example, Mozilla has invested in creating the world's largest voice datasets in several languages, called Common Voice,[4] to help make voice recognition open and accessible to everyone. Since most public services – access to banking, health and government services – are becoming accessible by voice, initiatives like Common Voice allows developers to design and train voice recognition tools with diverse multilingual datasets to ensure inclusivity and preserve indigenous languages (Yeboah, 2020).

Developing inclusive AI is important because the introduction of new technologies, such as AI, Internet of Things, and Big Data have not helped reduce existing global inequalities. Rather, it seems to be that these inequalities are as large as they were during Western imperialism (World Inequality Report, 2022). Therefore, the over-reliance on AI as the new key driver to inclusive growth will be a mirage if frameworks and strategies do not ensure equity of use and the application of AI technologies.

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4 See: https://commonvoice.mozilla.org/en.

REDEFINING RETURN ON INVESTMENT

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Globally, investments in AI research and development have increased at an exponential rate, more than doubling in the last year alone, reaching a historic high of $77.5 billion in 2021 (IndiaAI, 2021). As with all investments, the goal is to derive an economic return, and rightfully so; AI has the capacity to dramatically decrease the cost and increase the value of prediction, a commodity that has proven to be exceptionally profitable in nearly all sectors.

In the current AI development process, the ethos of "moving fast and breaking things" has dominated. While seemingly the quickest way to disrupt a market and turn a profit, this industrial model overemphasizes the end product to the detriment of an ethical, responsible or otherwise meaningful process, an approach that has, with various degrees of severity, benefited developers while hurting end users.

The dark side of the "break things" ethos is continuing to rear its ugly head in both the global and local context; with unbelievable implications for society and global geopolitics.

At the global level, the effects have manifested in the outcomes of federal elections, vaccination rates and even the course of a genocide. In fact, the practices of AI companies have become so powerful and disruptive that a new term has been coined to describe this phenomenon, specifically that of "digital colonialism" (Ávila, 2020). The term alludes to the tech companies' practices of extracting value (through data collection) and achieving control (through deployment at scale), in an approach that mimics the colonialist practice of state actors.

Even at the local level, the power imbalance between developers and end-users is cause for concern, particularly since the technology has been seen to *widen* social, political and economic inequalities; adversely impacting communities in ways they are often not aware of, let alone agree to.

In fact, AI technology is being used in areas as consequential as human resources, criminal justice and healthcare, domains that are notorious for perpetuating systemic bias and injustice. In this context, AI tools are being trained on legacy data to reproduce discriminatory decisions, often without warning or mechanism for redress; a reality that is surprising in a human rights-respecting, democratic society.

What's the antidote? I believe that the process of building AI technology must fundamentally change so that we can collectively benefit from our collective investment. This change starts with a new ethos, one that emphasizes moving slow enough to build rather than fast enough to break.

However, in order to change the ethos, we need to revisit our incentives. In the profit-driven context, return on investment (ROI) is the quintessential success measure, assessed using proxies such as "breadth", "frequency" and "depth" of use. Performing well on these metrics is simply a question of short-term return. However, short-term

return often fails to consider elements of long-term consequence and impact; features surrounding the demographic composition of the team, the multidisciplinarity of experts involved, the consultation of implicated communities or the standards of ethics and responsibility that were adhered to, among others.

As the saying goes, if you can't measure it, you can't manage it. We need new benchmarks, metrics and auditing bodies to ensure that AI technology is being built in ways that place the implicated communities at the center. It is the communities *themselves* that should be defining the problem to be solved, the way of solving it and the way of measuring its success. With the ethos of moving slowly and building, people can begin to feel confident in the technology that affects them daily, engendering a new logic of what it means to invest in AI.

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ON MULTISTAKEHOLDERISM, PUBLIC TRUST AND AI

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Cities are becoming powerful governance nodes in an interconnected, hyperglobal, and digitalizing world. In the realm of digital innovation, smart cities are gaining momentum, positioning cities across the globe as primary sites for tech experimentation, with AI-based solutions increasingly employed for law enforcement, crime prevention, traffic management and more.

Cities can seed inclusive, deliberative, and representative forms of governance, such as on digital technologies, while leveraging the technologies alongside offline engagement avenues to serve this purpose. This makes the involvement of all stakeholders in the governance of digital technologies a salient concern. However, society's involvement – citizens and civil society in particular – is too often an afterthought. The sourcing of tech solutions, meanwhile, is often clouded in hyped up narratives promising utopian outcomes, while downplaying and even overlooking altogether the very real harms these technologies can and do unleash.

To advance subnational governance of and through digital technologies, cities ought to learn from the promises, and more importantly, pitfalls of global governance approaches. In particular, multistakeholderism or multistakeholder governance as currently deployed at national, regional, and international levels offers significant lessons. Below, I outline three factors for cities to consider with respect to enhancing public trust in AI through multistakeholderism.

1. Articulate multistakeholder participation goals

While it may be in vogue to invoke 'a multistakeholder approach', it is all too often unclear if it refers to consultative processes – say, on whether a city should procure AI solutions for service delivery – or to multistakeholder engagement in enforcing oversight and accountability on tech procurement or AI decision-making, which are more substantial governance aspects. Absent such clarity, multistakeholderism can be reduced to mere tick-box exercises or talk shops where opinions are aired and recommendations offered but hardly incorporated into subsequent governance decisions. Cities should keep in mind that it is insufficient to only consult or engage with subsections of sectors, say big businesses, in exclusive and private fora, and pass such limited engagements as multistakeholder.

2. Sociocultural determinants of trust of AI

City administrations must give thought to the determinants of trust, both in the technologies they deploy, and in the administration processes themselves. This is particularly important for regions of the world whose realities barely inform the design of AI solutions—their first interaction with suppliers typically being at the point of pitching or purchase. Examples abound of AI technologies put to use in cities, only for them

to misidentify people, or lead to discriminatory decisions (notably based on race). Such injustices erode trust both in technologies and city governance processes.

3. Not all stakeholders are created equal

In its simplest definition, multistakeholderism or multistakeholder governance brings together all actors with a stake in an issue – such as AI deployment in city service delivery – to address policy challenges or goals. Stakeholders are typically categorized as representing government, private sector, civil society, and intergovernmental organizations, which, at the city level could refer to bodies such as the Global Parliament of Mayors.

At surface level, these categories may imply representativeness. However, a deeper dive into who represents these sectors is an important consideration. At the global level, government representation in multistakeholder initiatives usually comprises western nations; the private sector is typically represented by multinationals like the 'big tech' companies, and civil society by organizations with an international footprint. While representing different sectors, this multistakeholder formation is more homogenous than may be realized; it is limited to big players. In this paradigm, non-western governments, small and medium-size enterprises, local civil society, and cooperatives end up underrepresented, despite having significant roles within local communities. Cities must ensure that their multistakeholder governance initiatives keep in mind that not all stakeholders are equal, and that mere sector representation can lock out diverse perspectives from diverse groupings, big and small.

It is also important to keep in mind that representative consultation and engagement processes are resource-intensive, demanding finances, time, and capacity from city administration and intended participants. While virtual convenings can minimize these resource demands, they at best can only serve as complementary mechanisms for stakeholder engagements. Offline engagement remains a crucial driver of trust and community-building, especially since inequalities in access and meaningful use of digital technologies risk widening societal divides.

Cities, therefore, have an opportunity to reconfigure meaningful public engagement on the potential and perils of AI in public service delivery. In so doing, they can bypass techno-determinism and advance good practices on governance through and of digital technologies, to ensure contextual use of technologies that maximizes on their benefits and avoids their harms.

PUBLIC TRUST AND AI: FIVE KEY POINTS FOR REFLECTION

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I always feel a certain level of discomfort every time people talk about public trust in relation to AI. In this essay, I will enumerate five reasons why.

First, to trust or not to trust, is not a choice that everyone in the "public" can make (Lee and See, 2004). There are contexts wherein governments for example, impose that every citizen unknowingly shares all their data to the government, including what brand of toothpaste they use, or where they went for sundowner on a Friday night. Then governments use this data, along with others, to make decisions about a person's future (Andersen, 2020) – whether they are trustworthy for a housing loan, or likely a suspect for a crime involving moral turpitude. In other contexts, a Facebook feed is a person's only experience of the internet (Massola, 2018), and whether they like it or not, contribute and consume content sometimes without the sheer knowledge that one's data is used in a lot of ways, including poisoning their thinking about the world (Macaraeg, 2021) or their opinion of others not within their cultural circle. The view that putting trust in a piece of technology is a choice that everyone can freely make is deeply problematic.

Second, literature on trust formation and technology assumes an informed individual (Ashoori & Weisz, 2019) who knows how a piece of technology (Lee & See, 2004), a platform and its owners, make use of data. Sometimes people trust, not because they know that such technology or a platform does not pose any risk. They trust because others do so, and the magnitude of the perceived "trusters" becomes a basis of decisions (Nowak et al., 2019). If others have trusted these technologies, then nothing can potentially get wrong. If something bad happens, maybe that's just an anomaly. Trusting requires one's ability to know the other's competence, integrity, consistency, credibility, and even benevolence (Marsh et al., 2020) – that such technology is actually concerned about one's well-being. But for most people, at least in the context of where I live, the daunting unknowability of technology, and for this matter AI (Cassauwers, 2020), coupled with the lack of formal digital education (UNICEF, 2021), significantly impacts how they view and behave with technology. For several people, trusting in technology is a risk that they take, without sufficient information – hoping that it won't do them actual harm.

Third, I admire those that advocate for AI regulation. Kerasidou et al. (2021, p.1) argue, for example, that "Instead of agonising about how to facilitate trust, a type of relationship which can leave those trusting vulnerable and exposed, we argue that efforts should be focused on the difficult and dynamic process of ensuring reliance underwritten by strong legal and regulatory frameworks." But isn't it also true that states weaponize regulation to the disadvantage of the weak and the powerless (Najibi, 2020)? Or that

they also use regulation to silence the dissenters (Guest, 2021) or tamper the power of technology to do good (Candelon et al., 2021)? If regulation is in the hands of the rich, the learned, and the powerful, how do we ensure that regulation protects people, especially the marginalized?

Fourth, and this I strongly believe in, if we use regulation as a way of to make technology trustworthy, then we need to make that policy-making process inclusive (Global Partners Digital, 2015), in such a way that we are not only building a regulation that helps us trust something, but we are also building a process where everyone involved trusts that policy-making process and the institution that wields it. To make people participate meaningfully in that process, it is paramount to build their capacities (Lister, 2007) so that they can ask the right questions, articulate their issues and concerns, and propose solutions. On this note, I remember the European Commission's (2020) white paper on AI that proposes an "ecosystem of trust." But how would this policy-making process apply in contexts where governments themselves are the violators of the principles of this proposed ecosystem of trust (Roberts et al., 2021)? And how can we ensure that policy-making serves the interests of citizens, especially those that are habitually socially-excluded?

Finally, whose responsibility is it to ensure that technology is trustworthy? Is it those who share their data and use technology because, sometimes, they do not have any other choice but to do so, so that they are able to get the products or services that they need? If governments and businesses use AI, shouldn't it be their responsibility to ensure transparency, explainability, accountability, and remedy (Access Now, 2018)? If we are to move forward towards building trust, we should not be easy on the responsibility of governments, companies, and organizations to promote individual and community benefits in the use of AI, as well as their responsibility to do no harm.

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3 | PUBLIC AND PRIVATE BOUNDARIES IN TECH POLICY

PUBLIC SERVICE, PUBLIC-AS-A-SERVICE, AND PUBLIC SELF-SERVICE

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Service has been described as "the application of resources for the benefit of another" (Maglio et al., 2009). *Public service*, then, is the application of resources for the benefit of the public. But what I describe as *public-as-a-service* is a very different phenomenon: it is the application of the public's resources for the benefit of other parties, including private interests. When the public functions as a service, its own needs are subordinated to those of a larger multistakeholder system which includes public sector, private sector, quasi-public, academic, and nonprofit stakeholders. In that system, the public is reduced to a single stakeholder group that must cooperate and/or compete with other stakeholders to secure its own resources, assert its own decision-making authority, and capture its own value from the multistakeholder system. When the public functions as a service to other stakeholders, government stakeholders have abandoned their purported commitment to the public interest and instead serve the interests of the multistakeholder system. In the absence of government-led public service, the public must perform a self-service function in order to represent its own interests and capture value for itself from the multistakeholder system. I describe that phenomenon as *public self-service*: the application of the public's resources for its own immediate benefit, without reliable intermediation or support from any government stakeholder.

Consider the case of the Quayside project launched in March 2017 by Waterfront Toronto, the intergovernmental organization responsible for coordinating the redevelopment and revitalization of Toronto's waterfront communities. In October 2017, Sidewalk Labs—a subsidiary of Alphabet Inc. and sibling company of Google—was selected to partner with Waterfront Toronto on the Quayside project. In the following years, the Quayside project mutated from a relatively conventional, needs-sensitive public service (the redevelopment of Toronto's underutilized Quayside neighbourhood and the revitalization of its public spaces) into an extremely complex, needlessly costly, and technologically bloated smart city development project. Although Waterfront Toronto and Sidewalk Labs still promoted the Quayside project as though it were a public service, critics of the project noted that the unnecessary digital innovations and data technologies that were massaged into the project by Sidewalk Labs posed significant risks to public privacy, housing affordability, local economies, and local innovation ecosystems, all of which ultimately undermined the public interest and the public value of the project (Balsillie, 2018; Beamish, 2019; Keesmaat, 2019; Wylie, 2018).

As the Quayside project unfolded, its function changed from providing a *public service* to providing the *public as a service* to Sidewalk Labs. In other words, the public's resources—such as the public funding provided to Sidewalk, knowledge of public preferences and perceptions

gathered through consultation processes, as well as data pertaining to public activity that would have been gathered through the sensors and intelligence systems integrated into the Quayside neighbourhood—were to be applied primarily for the benefit of Sidewalk Labs. The mutual benefit that the public would receive in exchange for being rendered as a service to Sidewalk Labs was dubious (Balsillie, 2018), and public consultations that were held by Sidewalk at the behest of Waterfront Toronto involved "gaslighting" the public into believing in and subscribing to Sidewalk's narrative of public service (Wylie, 2018). In response to Waterfront Toronto's abdication of public service, the BlockSidewalk campaign was launched by a group of concerned Torontonians who advocated to "develop Toronto's waterfront for the benefit of Torontonians, not corporate shareholders" (2019). In doing so, the BlockSidewalk campaign functioned as a *public self-service*: an application of public resources by the public for its own immediate benefit.

As a response to ineffective government-led public service, public self-service represents a deferral of government responsibility to the public, such as Waterfront Toronto's deferral of its responsibility to hold Sidewalk Labs to account for jeopardizing public privacy, housing affordability, and local economies in a way that the public found agreeable and meaningful. This tension between government deresponsibilization and public responsibilization is symptomatic of a broader move in public governance toward embedding market logics and multistakeholderism into the practices of public management, as recognized by schools of thought such as New Public Governance (Osborne, 2006) and public value governance (Alford & O'Flynn, 2009). Critics of these market-led governance forms have noted that their political structure fundamentally conflicts with a significant traditional responsibility of the state: to serve the public as an institutional force that "constrains markets and limits powerful market actors" (Dahl & Soss, 2014, p. 498). Against this backdrop of government deresponsibilization and market-led governance, acts of public self-service simultaneously signify both a weakening and a latent strength of publics: on one hand, acts of public self-service signify an absence of institutional supports and organizational capacities that are expected of a responsible government; more positively, such acts also signify an inherent ability of publics to self-organize, self-determine and represent their own interests, assert their own voice, and capture their own value through direct political action.

The case of the Quayside project demonstrates how market-led power dynamics in multistakeholder systems and conflicting government incentives in public-private partnerships require the public to represent its own interests, re-assert its own voice, and capture its own value through practices of self-service. In May 2020, Sidewalk Labs withdrew from the Quayside project. Barth (2020) describes several reasons for their withdrawal, including their unfamiliarity with Toronto's political culture as well as sustained resistance against the project from the local community. He also suggests that tech activists study the case of Quayside as a "playbook for future battles." Calling out failures of public service, accounting for the risks of rendering the public as a service, and leveraging possibilities for public self-service will be vital practices in that playbook.

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WHO OWNS THE MAP? FRAMING SPATIAL DATA AS A PUBLIC GOOD

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We have entered an era of deep challenge for government at all levels, particularly in terms of ownership over data resources. For example, there is a tension between the need to protect data about citizens and national interests, and the trend of loosening government control over data through transparency initiatives such as open data provision (Bates, 2014; Cardullo & Kitchin, 2018). Though recent open data research has highlighted the benefits and opportunities of government opening up and releasing control over data, with calls towards a greater democratization of data leading to public and private sector innovation and increased citizen participation (Johnson et al., 2017), in reality we must question whether this can also create channels for the private sector to compete with government, possibly shifting control over data from the public to private sector.

Maps and spatial data provide an example of this shifting data landscape, as spatial data are used to support government planning and decision-making. Traditionally, spatial data used to create maps are collected, controlled, and disseminated by governments, though in recent years, this role has shifted, driven by open data policies that encourage data sharing (Zuiderwijk et al., 2014). Additionally, alternate sources of data are available, including data collected by private sector companies such as Google and Apple, provided through large-scale accumulation strategies, as well as data contributed by volunteers to open mapping platforms, such as OpenStreetMap. Given the general popularity and usage of maps and spatial data provided by Google and Apple, there is a strong potential for the role of government in compiling spatial data to be eclipsed by these private sources. This surfaces critical questions about the management of public sector spatial data resources. For example, how are third-party data collection regimes supplanting the need, ability, and role of government as a data collection and use entity (Scassa, 2018)? How can this shift affect the ability of governments to perform other functions that require spatial data, such as providing services, planning support, or safeguarding the public interest via the collection and sharing of data?

There are several possibilities for how government can negotiate these issues of control and ownership of spatial data resources, ranging from high levels of involvement to lower levels of involvement. At higher levels of involvement, governments could recognize that ownership over high-quality spatial data resources are critical to protecting government ability to guard the public interest. Given this, governments could create and enforce data copyright regimes and invest in robust government-owned data collection

programs. Alternately, governments could create structured licensing regimes where third parties contracted to collect data are required to provide data for exclusive government use. At lower levels of involvement, governments would instead purchase or license (non-exclusively) data collected by third parties to supplement existing government data. With this level of involvement, governments would effectively be acting as a customer of private-sector entities. At an extremely low level of involvement, governments could fully retreat from data collection entirely, instead becoming completely reliant on third parties to provide key spatial data to support decision-making and policy development.

Within this shifting environment of spatial data control, governments must confront their role as stewards of the public good, specifically of the data produced to support this mission. A broader understanding of data ownership, and the role of government in protecting data resources is required. As data collection continues to move beyond the domain of governments (either through government retreat, purposeful transfer, or competition from outside government), this shift from a government monopoly over data to the challenges of negotiating a multiplicity of competitive data sources bears continued investigation. Critically, within this investigation of the challenges to government data control, it is imperative to consider how control itself is framed, and the broader role of government within data collection, use, and dissemination.

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PUBLIC DATA AND THE VALUE OF DOUBT

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Many debates have recently diagnosed a lack of trust in public data infrastructures. These include a declining trust in statistical systems (Davies, 2017) and a lack of trust in data management of public health services (Morley et al., 2019). Instead of questioning trust as a problem, prominent responses often call for more trusted ways of sourcing and circulating data, more statistical factfulness, or more transparent assessments of automated decision-making systems.

Trust is an important precondition for actors to cooperate. But its overemphasis may end up in elitist solutions that reinforce authoritative ways of seeing. For instance, when statistics offices and public administrations use statistical quality conventions to emphasize their trustworthiness while they simultaneously discredit civic data collections as "unreliable." It may also reduce public engagement with data infrastructures to mere consent management instruments (Pohle, 2021) or reduce impact assessments to a method for legitimizing technologies and confirming already made decisions about their implementation.

Could we instead cultivate doubt vis-à-vis public data infrastructures? What formats and arrangements would facilitate such doubtful practices? And how could a doubtful sensibility change public engagement with data infrastructures?

For critical accounting scholar Paolo Quattrone, doubting describes the practice of opening up questions and discussions around collectively shared values, rather than foreclosing them (Quattrone, 2015). Through a historical study of bookkeeping practices among religious communities and corporations, he suggests that accounting evolved from a reflective inquiry into social ties and relations towards a reification of supposedly objective values. Along the way, valuation lost its purpose of being a search for collectively held values. Quattrone instead asks if we could see accounting as a "maieutic machine" – an arrangement that invites reflection and interrogation into the mechanisms bestowing value onto our world. Such doubtful practices would emphasize the partiality and incompleteness of any account (understood in its double meaning of narration and bookkeeping), as well as the rules, processes, and protocols bringing them into being in the first place.

Doubt, therefore, does not equal distrust. It is more akin to what pragmatist philosopher John Dewey called an "inquiry" (Dewey, 1938): a constant, open-ended process of dealing with uncertain situations by creating spaces for ambiguity and heterogeneous positions. Translated to public data infrastructures, colleagues and I explored across several studies how publics may create spaces for doubt and inquiry. We called these initiatives "participatory data infrastructures" (Gray et al., 2016; Gray & Lämmerhirt, 2017) to make the argument that data is not (only) a resource to be opened up or closed (i.e. a "commons"). Rather, participatory data infrastructures mediate commonly shared issues, negotiate interests, or bring into being issues that public information systems would otherwise overlook or leave undocumented. A common finding throughout our

work was that because public data infrastructures always foreground certain things and let others recede, they can only mediate particular social issues that matter for collective life.

The value of participatory data infrastructures, therefore, lies not primarily in how much participation they can foster.[5] Rather, it lies in how initiatives can create spaces for reflection on public problems successfully. This finding cuts across various contexts we studied: the creation of location-specific air pollution measurements, the analysis of dodgy municipal council contracts with the financial sector, interrogations of crime maps, the documentation of police killings, disputes over urban land use, and community benchmarking projects of public service delivery that are provocations for existing ways of assessing their quality. All cases used a mix of tools and methods - freedom of information requests, databases, public hearings, news reportings, and parliamentary inquiries - to render public problems "account-able" and to create such spaces.

Participatory data infrastructures also do not merely fill "data gaps". Rather, they can help inquire into the absences of existing data collections, the histories and values shaping data infrastructures, and their embeddedness in social, institutional, and infrastructural relations.

For instance, one of our case studies, the Science for Change movement sought to "make air campaignable" by analyzing existing air monitoring infrastructure, assembling citizen-generated air pollution data, and establishing partnerships with scientific institutions to validate their measurements (McQuillan, 2016). Not only did the project foreground that air pollution concentrations vary in the Kosovan city of Pristina and that vulnerable groups are particularly exposed. It also problematized inefficient public air monitoring infrastructures in Kosovo and the absence of data that could inform a public debate about environmental policy. Another example is the Million Dollar Maps initiative, a research project that reframed the narrative of "crime hotspots" (Kurgan, 2013). Instead of focusing on crime location data, the project assembled data on where convicted people live, drawing attention away from locations where crimes are more likely to happen, and towards the neighbourhoods inmates would return to and their lack of reintegration programs. The resulting Million Dollar Maps visualized the costs of focusing on crime prevention and its logic of organizing police presence preemptively and opened a debate on criminal justice reform. Importantly, both initiatives did not expose errors in public databases that could be remedied through better stewardship. Instead, they were more profound ways of critiquing the concepts and methods by which public problems are accounted for and governed.

While rarely discussed, doubt is perhaps one of the more important legacies of the "open movement". This is because it represents a continuous search for what we hold in common, as well as the constant improvement of conditions for interacting with one another. But doubt requires comfort with critique, opposing positions, and the understanding of the partiality of any data. This proposition may seem counterintuitive or even outrageous to some, given the role doubt can play in sowing disagreement and displacing action on public problems (Oreskes & Conway, 2010). The value of doubt should itself continuously be reflected upon in our search for bettering the conditions of public engagement with data and technologies.

5 Prominent models like Sherry Arnstein's ladder of participation (1969) imply that more participation is per se desirable. Critics of these participation models argue that this overlooks the structural features of participation and its effects on different actors, see Kelty (2017).

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HIGH RISK EXPERIMENTS IN MIGRATION TECHNOLOGIES

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People on the move are stuck in an ever-growing panopticon of technological experiments (Molnar, 2020) increasingly making their way into migration management. A whole host of actors and players operate in the development and deployment of migration control technologies, obscuring responsibility and liability, exacerbating systemic racism and discrimination, and obfuscating meaningful mechanisms of redress. When looking at the impacts of various migration management and border technologies – technologies such as AI-powered lie detectors, surveillance drones, and various automated decision-making tools – it is important to consider the broader ecosystem in which these technologies develop. An ecosystem which is increasingly replete with the criminalization of migration, anti-migrant sentiments, and practices such as pushbacks leading to thousands of deaths at borders (Grandi, 2022).

Since 2018, I have monitored and visited borders all around the world, most recently at the US/Mexico border[6] and the Ukrainian border during the ongoing occupation.[7] Borders easily become testing grounds for new technologies, because migration and border enforcement is already an opaque and discretionary decision-making space. A space where life-changing decisions are rendered by decision-makers with little oversight and accountability, in a system of vast power differentials between those affected by technology and those wielding it.

In February 2022, I was in the Sonora desert at the US/Mexico border, to firsthand see the impacts of technologies which are being tested out. These technological experiments include various automated and AI-powered surveillance towers sweeping the desert, facial recognition and biometric mass surveillance, and even the recently announced robo-dogs which are now joining the global arsenal of border enforcement technologies (Molnar & Miller, 2022). The future is not just more technology, it is more death. Thousands of people have already perished making the dangerous crossing, like Mr. Alvarado, a young husband and father (Molnar & Miller, 2022) from Central America, whose memorial site we visited. Indeed, surveillance and smart borders have been proven to not deter people from making dangerous crossings – instead, people have been forced to change their routes towards less inhabited terrain, leading to loss of life (Boyce et al., 2019).

In the opaque and discretionary world of border enforcement and immigration decision-making – structures which are underpinned by intersecting systemic racism and historical discrimination against people migrating – technology's impacts on people's human rights are very real. We already know that facial recognition technology is highly discriminatory against Black and Brown faces and that algorithmic

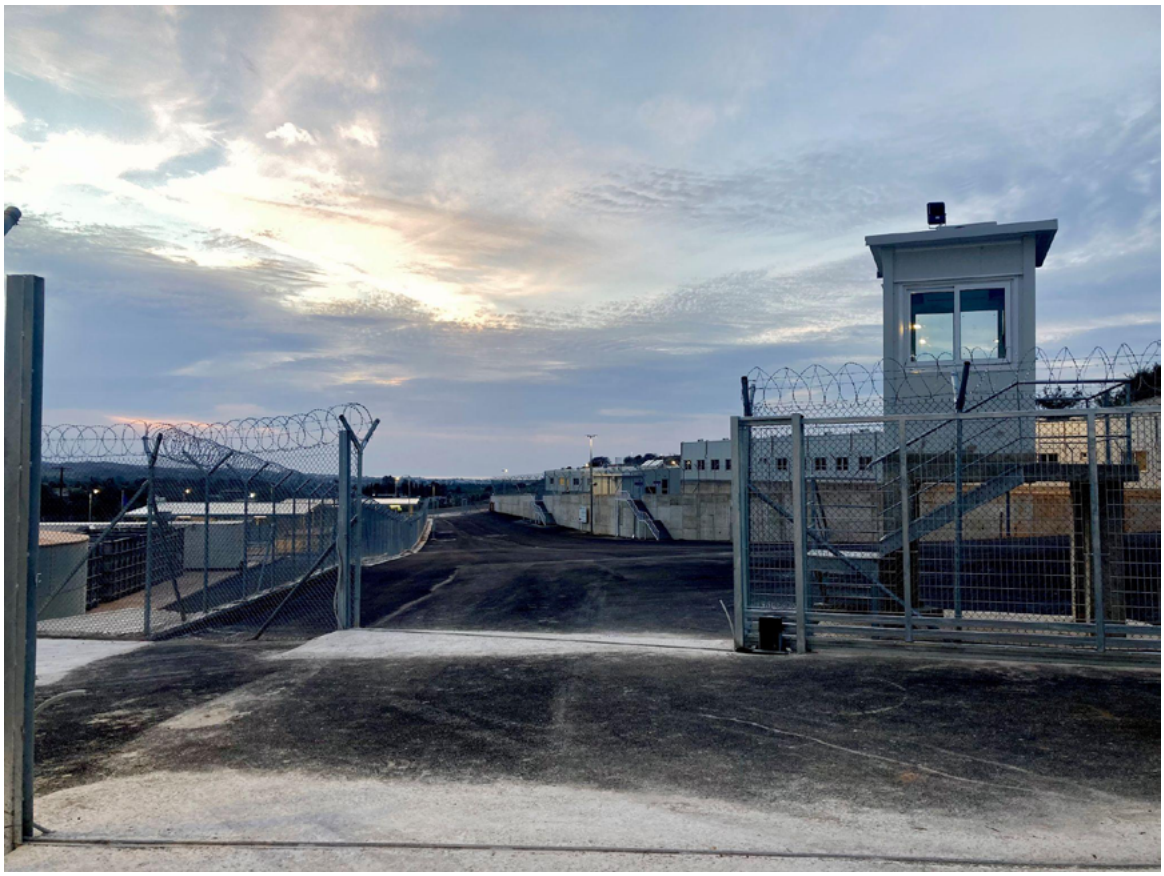
6 See: https://twitter.com/_PMolnar/status/1488218353407705090?s=20&t=R6QQ_v5qIrycjkq3t4GTVw
7 See: https://twitter.com/_PMolnar/status/1502600169153609731?s=20&t=R6QQ_v5qIrycjkq3t4GTVw

decision-making software often relies on biased data sets which renders biased results.

The US/Mexico border is not the only region where violent border and migration technologies are being deployed. Around the frontiers of Europe, we have also been documenting the rise of new prison-like refugee camps in the Aegean islands, part of an increasingly virtual and violent Fortress Europe (Molnar, 2021b). Speaking to a young mother from Afghanistan on the eve of her family being forcibly transferred to one of these camps on the island of Samos this past September, she hurriedly typed out a message: "if we go there, we will go crazy" (Molnar, 2021a). It is not difficult to imagine why – the new camp is surrounded by layers of barbed wire, with algorithmic motion and "risk" detection surveillance, fingerprint scanners, and even virtual reality technology currently being tested out to monitor people living inside (Emmanouilidou & Fallon, 2021; Molnar, 2021c).

But at the end of the day, this conversation isn't really just about questioning technology. It is about asking broader questions (Molnar, 2020) – questions around which communities get to participate in conversations around proposed innovation and which groups of people become testing grounds for border tech experiments. Why does the private sector get to – time and again – determine what we innovate on and why, in often problematic public-private partnerships which nations are increasingly keen to solidify in today's global AI arms race? For example, whose priorities really matter when we choose to create AI-powered lie detectors at the border instead of using AI to identify racist border guards?

In my work based on years of on-the-ground research and hundreds of conversations with people who are themselves at the sharpest edges of border technological experimentation, it is clear that the current lack of global governance around high risk technologies creates a perfect laboratory



Credit: Petra Molnar

for high risk experiments, making people on the move, migrants, and refugees a testing ground.

Currently, very little regulation on border technologies exists – in Canada and internationally. However, the EU's recently proposed regulation on AI (first proposal tabled in April 2021) demonstrates a regional recognition that technologies used for migration management need to be strictly regulated – with ongoing discussions around an outright ban on biometric mass surveillance, high risk facial recognition, and AI-powered lie detectors. We desperately need more regulation, oversight, and accountability mechanisms of border technologies. We also need to recognize that the use of technology is never neutral. It is a political exercise which highlights how the allure of quick fixes and the hubris of innovation does not address the systemic and historical reasons why people are marginalized and why they are forced to leave their homes in the first place.

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TRANSPARENCY IN THEUSE OF FACIAL RECOGNITION FOR LAW ENFORCEMENT IN CANADA

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Municipal procurement processes across Canada are at various levels of sophistication and maturity and there are not a lot of common best practices for technology procurement. It becomes quite unclear when you look at police services procurement as it is sometimes handled by the police services, sometimes by municipal procurement and sometimes a hybrid of the two. There are even police procurement cooperatives like the Police Cooperative Purchasing Group in Ontario that includes several police services organizations in the Greater Toronto area. When it comes to technology procurement, especially AI, there needs to be oversight and protocols to protect public interest and rights. A solid foundation is the technology procurement brief written by Matthew Claudel and Bianca Wylie, "Technology procurement: Shaping future public value" (2021).

It is also difficult for citizens and non-governmental organizations' watchdogs to keep up with police technology procurement. Many large police services organizations use Merx[8], a public procurement portal and it is not the easiest to navigate unless you know what you are looking for.

These challenges remind me of Clearview AI, the notorious facial recognition company scandal.

On February 28th, 2020, only 12 days before COVID-19 was declared a pandemic and changed everything, I was contacted by Bell Media, in my capacity as a technology researcher and data scientist at the Information and Communications Technology Council (ICTC). It was to talk about how the Royal Canadian Mounted Police (RCMP) on the Bill Carroll national radio show admitted to using Clearview AI. I talked with Bell Media Ottawa radio shows about phone scams in the past, but this was the first time I discussed the misuse of AI, specifically law enforcement use of facial recognition technology. I wondered where the discussion would lead.

The day before, on February 27th, 2020, the RCMP published a news release indicating the RCMP's National Child Exploitation Crime Centre had been using and evaluating Clearview AI's software for approximately four months. Their disclosure, as described in the release, was in the interest of transparency (RCMP, 2020). The week before, the Canadian Privacy Commissioner announced an investigation into Clearview AI's personal data collection practices (The Canadian Press, 2020). At this time, I was working with an ICTC

8 See MERX.

colleague, Mairead Matthews, on a response to the consultation request by the Office of Privacy Commission of Canada (OPC) to the OPC's recommendations to Parliament on AI implications for Canadian privacy law reforms (Davidson & Matthews, 2022). There was a clear convergence on the Clearview AI story and privacy issues.

The interview was lightweight except at the end, when Bill Carroll gave credit to the RCMP for their transparency. I quickly pointed out that Clearview AI just admitted their customer list had been breached and leaked. Consequently, the RCMP's use of Clearview AI was going to be publicly known, revealing that RCMP's news release was not an act of transparency (Allen et al., 2020). This turned the discussion, but we ran out of time. I wondered if this would be the end of the story.

It was not. On August 25th, 2021, BuzzFeed News published a Clearview AI article that contained a searchable global database of alleged law enforcement use of Clearview AI's service (Mac et al., 2021). On this list, the RCMP appeared along with several major Canadian municipal and regional police organizations. Many admitted to only trialling the Clearview AI technology, while others did not respond to BuzzFeed's questions about their alleged use. While the police services answers were murky, it was clear that there was not much oversight to the trialling and use of the technology. It seemed the software trials had bypassed or not yet engaged official procurement processes.

If it had not been for the data breach and data leak of the Clearview AI customer list by investigative journalists, how many Canadians would know of law enforcement use of facial recognition technology in the country? Frankly, I wonder how many Canadians know now – it is unclear.

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MODERNIZING COMPETITION REGULATION FOR PUBLIC TRUST IN SMART CITY TECH

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A modernized competition regime will help to facilitate public trust in smart city technologies in Canada. Public trust requires that people do not feel "stuck" in the smart city's technological framework. They need to have ownership over it and trust private actors that run it. Competition regulation gives power and choice to consumers – if cities can only buy one product, then the power lies with that monopoly. Ensuring a robust sector where there is competition in smart city tech and tools allows for fairer procurement. Thus, a refreshed regulatory environment is necessary to achieve smart cities that can earn and maintain the public's trust by appropriately protecting privacy and eroding insurmountable barriers to entry through data portability and interoperability mandates.

In a recent working paper published with Vivic Research and co-authored with Ana Qarri and Robin Shaban, we surveyed nine case studies to discuss competition issues in data-driven markets in Canada (Bednar et al., 2022). Two of these case studies considered policy opportunities related to Internet of Things (IoT) ecosystems: one in a consumer context (considering connected cars and voice assistants)[9] and another in a commercial context (considering data lock-in and proprietary farm equipment). We note that the distinction between "consumer" and "commercial" is somewhat artificial as the spaces are merging.

A recent example of a "new" IoT for the home is the "M-Pwr Smart Door"[10] from Masonite, which is hardwired to the home and has a Ring video doorbell[11] and Yale smart lock[12] built in (Tuohy, 2022). It is the first residential exterior door to integrate power, lights, sensors, a video doorbell, and a smart lock in the door system. Though we previously separated the discussion of IoT ecosystems between consumer and commercial considerations, it is worth noting that connected cars may soon be linked to connected homes – merging dual sets of considerations. Recently sponsored content in Wired magazine from Ford predicted that "soon, SYNC Connect[13] will be compatible with Amazon Echo, so

9 We chose these examples because they raise important adjacent issues in other, related domains, like smart device manufacturers, insurance companies, repair and maintenance services and other complementary services.
10 See: https://residential.masonite.com/product/exterior-doors/smart/
11 See: https://ring.com/doorbell-cameras
12 See: https://shopyalehome.com/collections/smart-locks
13 See: https://www.ford.com/support/how-tos/sync/getting-started-with-sync/sync-connect-overview/

you will be able to simply voice control your car from the comfort of your home".[14]

Nonetheless, the purpose of exploring these two case studies is to pinpoint opportunities for regulatory clarity and consider the ability for new entrants to effectively compete in the emerging IoT marketplace.

Regulatory lag in and of itself is also fundamentally damaging to public trust, as it implicitly facilitates regulatory entrepreneurship that in the case of smart cities and homes, can privilege incumbents and harm competition. A conservative, unresponsive state that allows privacy violations as a path to or justification for market dominance tacitly privileges the interest(s) of private actors over public ones.

In order to ensure that continued developments in smart city technologies embody the goals of responsible innovation, champions of smart city procurement, adoption, and evolution must consider the implications of an out-moded competition regime for continued innovation and experimentation with and of the technologies that make a city smart. In championing the imperative of comprehensive competition reform, policy people must also avoid repair monopolies with IoT and thus must also concurrently advocate for the right to repair. They must also shake the concept of a 'smart city' as being necessarily urban.

Establishing the "Right to Repair" is also relevant to establishing trust in a democratized smart city. The "Right to Repair" is both a legal and social movement that seeks to require that original equipment manufacturers provide tools, software, and instruction manuals to their customers in order for them to perform their own diagnostics and repairs (Pinzon, 2021). It also promotes the social, environmental, and economic benefits of a more repairable world.

The Ministry of Innovation, Science and Economic Development's recent statutory review of the Copyright Act (Government of Canada, 2021) included a strong focus on repair and a call for related evidence in its discussion on the Internet of Things. This is promising.

The very nature of IoT devices – that each is produced and sold by one firm – gives way to problems related to access to data and interoperability. Firms that manufacture complementary devices or that operate in an adjacent or downstream market related to IoT ecosystems often need access to the data, to technical information, or to the ecosystem itself to function properly. In our Vivic paper, we caution that reduced interoperability could be an exclusionary strategy for protecting or creating data dominance.

The Competition Bureau previewed in its 2022-2023 Annual Plan (Government of Canada, 2022) that it will "begin examining how data mobility can support greater competition in the digital age." Data portability and interoperability are promising interventions as they are broadly useful to the consumer, but without competition reform, they are an insufficient solution to broader competition issues.

These data-based rights alone are insufficient to temper or diffuse the power of the largest technology firms that have already established digital roots in our personal and professional lives. We need true competition to increase the quality of products which will, in turn, improve public procurement options.

Much like the features of a smart city, the legislative approach of policymakers to establishing and maintaining the trust of the public must be smart, layered, and interconnected: concurrently modernizing privacy, competition, and consumer protection legislation while introducing the right to repair.

14 See ad promoted by Ford in Wired

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4 | LEGAL PERSPECTIVES AND MECHANISMS FOR ACCOUNTABILITY

COMPUTER VISION AND SMART CITIES: NOT SEEING EYE TO EYE

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Smart cities are predicated on various forms of massive data collection. One question that follows is how to use all that data about people, infrastructure, space, and the relationships between them. Enter "artificial intelligence" as a means to make sense of it all and ostensibly inform decision-making. The narrative that smart city planners can use AI to be "smart" and improve efficiency, cost-effectiveness, etc. is not a unique way of describing the assumptions of AI. However, I want to interrogate that narrative in this paper by focusing on a specific set of AI technologies - computer vision - and how it is presented as a key part for AI and smart cities in traffic management, parking, security and surveillance, public health, monitoring infrastructure, etc. Building on prior work (Shenkman, Thakur, & Llansó, 2021) I argue that there are five main limitations with the use of computer vision tools in smart cities and that it is critical for policy-makers, urban planners, and the public to be aware of these limitations.

Let's start by not talking about "AI" since it is an umbrella term that can overlook the specific technologies in question while also suggesting that we should remove responsibility and accountability away from those who design and use those tools to some kind of other "intelligence." Instead, I refer specifically to the technologies in question and those who develop them. Here, I want to discuss computer vision, which refers to models used by researchers in the analysis and prediction of whether some multi-media content conforms to certain shapes, textures, colours, spatial arrangement, and static and temporal relationships. An example of this is an image classifier. Researchers can use these models to predict whether or not an image contains a pedestrian and whether they are a man or woman. Note the power of the researchers who design classifiers in these cases to exclude by, for example, enforcing binary definitions of gender. Other types of computer vision techniques include object detectors which researchers use to predict what and where objects are located in an image. Another technique is scene understanding which helps researchers examine the geometric and semantic relationships of some multi-media content (Naseer et al., 2019). For example, researchers used scene understanding and visual sentiment analysis to develop a model to predict whether persons in an image were protesters, what kinds of activities they were engaged in, and the level of violence (Won et al., 2017).

While these use-cases may sound helpful to some decision-makers there are significant limitations to the use of computer vision tools in smart-city (and other) settings. First, there is the lack of robustness of these tools. Researchers develop these models in a controlled environment where they often perform much better than in real-world situations

because of natural variations or deliberate attempts to fool the model and those that rely on it. For example, the model may be trained to make predictions of whether a street image contains manhole covers using a data set that includes photos of manhole covers taken outdoors in bright sunlight. When presented with a photo of a manhole cover with poor lighting it may fail to recognize the cover. Another problem is where people attempt to deliberately evade the system by painting the manhole cover to make it appear like concrete or asphalt, again causing the model to make an incorrect prediction.

Another limitation is the biased data used to develop these models. Some well-known examples include flawed data sets used to develop facial recognition systems which in turn lead to flawed predictions (see Buolamwini & Gebru, 2018). In response, some researchers work on techniques using generative adversarial networks (Goodfellow et al., 2014) to construct synthetic data, or data that can mimic real world data based on certain parameters. However, the bias that leads to the development and use of flawed data is in fact a social problem, and seeking to solve it by technical means alone is always going to fall short.

Decision-makers that rely on computer vision models will also rely on predictions that do not adequately consider context. In fact, humans are actually much better at understanding context in an image or video than such models. For example, a model trained to detect nudity will have time determining whether the nudity in an image is occurring in an artistic, political, health, educational, pornographic, or abusive context.

There is also the problem of communicating the performance of a computer vision model. Researchers and vendors may describe performance in terms of "accuracy." However, this is often unhelpful because for example, even when the action in question is rare (e.g., there are not many multi-media content examples of actual terrorist acts) the researchers behind the model may claim it is 99% accurate, and that would be correct for the wrong reasons.

Finally, and very important, is the lack of explainability of how computer vision models arrive at certain predictions and decisions. In general, it's often difficult for researchers (or anyone) to explain how their model makes predictions in ways that humans can understand. This has direct implications for concerns about public trust in the use of these tools in cities. And this is also important because explanations can help identify predictions that perpetuate bias or mistakes in the real world.

Ultimately, the motivation behind computer vision techniques includes having better ways to use the enormous data that smart cities by design generate. Ostensibly, that implies relying less on humans and more on "artificial intelligence" to be more efficient. In reality, we will rely less on some humans and more on the worldview of others who design and sell computer vision systems encumbered with all the limitations described earlier. Policymakers and the public need to be more aware of these limitations when considering computer vision and related solutions for local governance.

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WHERE IS FACIAL RECOGNITION TECHNOLOGY HEADING IN BRAZIL?

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From small cities in the northeastern interior, such as Mata de São João in Bahia (Peet, 2021), to large southeastern metropolises, such as Rio de Janeiro (Locker, 2019), the use of facial recognition technologies (FRT) is becoming increasingly common in Brazilian municipal public policies. The reasoning behind their adoption varies: detecting people wanted by the justice system, monitoring student attendance at schools, and enforcing the payment of public transit fares, among others.

What, at first glance, seems like an attempt at modernization to improve the efficiency of public services, under a more detailed analysis, these practices become extremely harmful to the local inhabitants, as I will detail below.

From the moment the acquisition of these technologies is conceived, we have seen how the bidding procedures are carried out with little or no transparency. Despite such voluminous investments in a technology that still has high error rates (e.g., false positives), basic information is lacking on how user data will be processed and how citizens' rights will be respected. In most cases, such purchases are not preceded by extensive public debate, being acquired without public disclosure of information that is of interest to users of public services–even when it is a multimillion-dollar expense that impacts the lives of millions of people.

In addition to budget and transparency issues, a number of trans (Silva, 2021) and black activists (Mozilla, 2022; Silva, 2022) and researchers have pointed out a series of other problems related to facial recognition technologies: the inaccuracy of systems, systemic racism in policing, technological neutrality discourses, and the weakening of the right to the city. Moreover, these issues extend to the strengthening of a vigilantist infrastructure, the well-documented bad faith of technology companies, data breaches, as well as, the already mentioned unreasonable cost-benefit discourse of implementing these technologies.

This extensive list of concerns shows that the problem of facial recognition technologies should not only be approached from the data protection perspective–despite being one of the most evident factors in the public debate, thanks to the country's new privacy legislation. And this is extremely relevant for the Brazilian scenario; despite having a recent general data protection law, such regulation does not apply to public safety and national security activities, which are precisely one of the most threatening alleged reasons for FRT use and which currently justify the deployment of facial recognition cameras throughout the country. In this way, to use other arguments such as the well-established consumer rights and constitutional guarantees are

becoming legally viable alternatives to go beyond the leading debate on privacy.

Get my face out of your sight: the growing Brazilian movement for a ban

Taking into account all the problems related to the legality, transparency, accountability and efficiency of facial recognition technologies, in recent years there has been a movement to ban these systems in Brazil.

While in Europe (Peets et al., 2021) and the United States (Ban Facial Recognition, 2022), legislative initiatives have been the most successful path, in Brazil, actions before the courts and government agencies are the paths in which civil society organizations (CSOs) have been most successful so far. After complaints (Mari, 2019) from the Brazilian Institute for Consumer Protection (Idec), the National Consumer Secretariat acted, for example, by fining the clothing store Hering for using facial recognition without the knowledge of customers. ViaQuatro, which has the concession for the yellow line of the São Paulo subway, was also condemned (Access Now, 2021b) by the Court of Justice for capturing images of passengers while watching advertisements.

In parallel with the litigation activities, CSOs and research institutions have also been collaborating and acting together to express their concerns about the rampant implementation of facial recognition technologies in Brazil. Some of the most significant examples are the letters and statements calling for a ban (Access Now, 2021a), the mapping of facial recognition implementations (O Panóptico, 2022) and participation in public hearings in city councils (Câmara Municipal do Rio de Janeiro, 2021), state assemblies and the national congress.

These activities have created public awareness around the harms of these systems by making space for public debates, since the journalistic coverage of the topic was usually done in an uncritical way, sounding almost like a press release from the public administration.

In addition, with such repercussions, local left-wing politicians have started to send out requests for information and draft bills with the help of researchers and activists, to prevent the use of these technologies by the public sector in their municipalities. This movement is happening in cities like Rio de Janeiro, Recife and Vitória (Aquino, 2021). These progressive and contesting actions do not arise without a negative reaction, including from the general public itself. Let's remember that Brazil is a country currently ruled by a far-right president, which has high crime rates and one of the largest incarcerated populations in the world. There are many comments that appear on social media[15] when it comes to banning facial recognition, affirming that technology is needed to fight crimes. These questions are extremely valid, especially since they come from an audience that is not immersed in discussions about digital rights. And there is also another challenge, in addition to the institutional obstacles, which is to know how to didactically explain what FRT is, what the impacts are, and how to identify and enforce rights guaranteed in the use of this technology.

In this sense, it is clear that just as the problems related to facial recognition technologies are multiple, the strategies to banish them will also have to be diversified. Brazil finds itself in a complicated political moment that disfavours some efforts to tackle this issue; however, the aforementioned political articulations, the growing legal decisions pro-ban and the gradual awareness of the population have been sources of hope for activists and researchers directly involved in these actions.

15 See, for example, The Intercept Brasil's post on Instagram: https://www.instagram.com/p/CUC4zFQgU1F/

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PARASITIC PLATFORMS: ADDRESSING SURVEILLANCE CAPITALISM THROUGH FACE RECOGNITION TECHNOLOGY

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I was not surprised at all when I read that Clearview AI had offered its services to the Ukrainian government in March 2022 in the wake of the Russian invasion. Less than a week before, the company had been fined millions by data protection regulators in Italy. As Privacy International (2022) aptly commented, it appears that "no human tragedy is off-limits to surveillance companies looking to sanitise their image."

Clearview AI has gotten significant media attention since the New York Times began reporting on them in early 2020 (Hill, 2020). The company's business model is, without a doubt, predatory and exploitative in nature (Stevens & Brandusescu, 2021).

When we put photos of ourselves and loved ones on social media websites like Instagram, Twitter, TikTok, or Facebook, we generally expect that our photos will be viewed by our friends and the people who follow us. We have no reason to expect that our photos will be compared en masse against mugshot databases or lists of terrorists — so that police can issue warrants against us and potentially arrest us, our friends, or our loved ones.

Yet this is exactly the service that Clearview AI provides to the police and other security agencies. The company scrapes our images from the web without our consent so that our faces can be matched with faces on 'watchlists' comprised of people who are (allegedly) criminals. It is a prominent example of a company providing biometric recognition for the unique identification of people, despite the highly sensitive nature of data associated with our bodies (Lomas, 2021).

As the Canadian privacy regulators found in 2021, Clearview AI has put all people in its database in a 24/7 police line-up (Government of Canada, 2021). More than this, people of colour — especially Black (Owusu-Bempah et al., 2021), Indigenous (Clark, 2019), and Latinx (Mineo, 2020) people — are already over-represented in US and Canadian carceral systems. Such automated recommendation software also reproduces and further concretizes these inequities. The technology disproportionately misrecognizes people of colour (Buolamwini & Gebru, 2018), women (National Institute of Standards and Technology, 2019), and trans and non-binary people (Marshall, 2019). And when people are surveilled online through algorithmic profiling, it has a chilling effect (Büchi et al., 2020) on their behaviour.

The company has already collected nearly 100 billion images (Harwell, 2022) and has faced serious sanctions by data protection regulators around the world. But the ambitions of this company's founders and investors seem to know no bounds, and little seems to be standing in their way for now. It is clear that the people behind companies like Clearview AI want to maximize their profits — even if it means destroying our right to privacy, freedom from discrimination, and right to free expression online. But the truth is that Clearview AI is just the tip of the iceberg when it comes to the problem at hand. The company's representatives have said that they simply want to become the "Google for faces" (Taylor, 2020). What does this tell us about the current state of affairs?

In short, Clearview AI is just another type of platform (Srnicek, 2016) that extracts a particular kind of raw material: data. They then sell their product — data analytics for face-matching purposes — to police and governments. The company also wants to sell their services to the private sector (Jones, 2022), leaving little doubt that their services could also be used to "catch bad guys" in real-time in settings like malls, banks, offices, or potentially even apartment buildings or private homes.

But in order for Clearview AI to exist, they simply mine the data that has already been extracted by other platforms, like Google and social media companies. There is no silver bullet to reigning in such platforms premised upon surveillance capitalism (Laidler, 2019), where our informational self-determination and autonomy are at stake.

But it is time we recognize biometric recognition technology companies like Clearview AI — which jeopardize our fundamental freedoms — for what they are: parasitic corporations that capitalize on the fear of unidentifiable people (Gates, 2011), and that will not stop until governments, human rights activists, and even other powerful corporate actors help put a stop to their reign.

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ALGORITHM REGISTERS AS AN INFRASTRUCTURAL ELEMENT FOR TRANSPARENT GOVERNMENT

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What are algorithm registers

An algorithm register, in its most basic form, is a list of the algorithms utilized by governments. Most public algorithm registers in practice are websites with curated lists of technology applications used by government. Algorithm registers have been developed at national, subnational, and municipal levels of government (Open Government Partnership, 2020). Algorithm registers are important for both governments and citizens since they provide transparency of the decision-making processes implemented by governments. The vast majority of citizens do not know they are subject to algorithmic decision-making until something goes wrong. One highly publicized example of algorithmic opaqueness is the UK grading scandal where an algorithm adjusted grades based on geography and school (Quinn & Adams, 2020). The issues of algorithmic bias being highlighted by journalists and the press are a symptom of a broader issue. That broader issue is the information asymmetry or power imbalance between governments and citizens in knowing what algorithms are used by governments that impact citizens. One of the longer-term risks of an ongoing lack of transparency on algorithms and decision-making processes used by governments is that citizens lose faith in governmental institutions and the ability for government to select and implement appropriate technology.

Algorithm registers published by cities

Algorithm registers have been published by cities for different reasons. France, where multiple cities have published algorithm registers, is a leader in the space of publishing algorithm registers in the context of strong federal laws on transparency of algorithmic decision making often described as the “right to know” (OGP, 2021). In another example, the City of Amsterdam (2022) has published an algorithm register due to advocacy by civil society groups, when algorithmic decision-making was found to be biased against racialized immigrants (Cassauwers, 2021). The City of Helsinki (2022) also has published an AI Register due to their commitments to the Open Government Partnership Action Plans. Algorithm registers are therefore published for a variety of reasons, from legislation to advocacy by civil society and open government commitments. Algorithm registers are closely linked to open data initiatives and are often part of formal open government plans.

The importance of algorithm registers

Algorithm registers make the decision-making processes of government more transparent and understandable. Citizens have a right to know what algorithms are being used by governments to make decisions about them. As previously described, most people are unaware of the use of algorithms by government, and often only find out through investigative reporting by journalists (Allen et al., 2020). Government leaders, on the other hand, are often unaware of algorithms implemented by frontline staff (Tunney, 2020). Therefore algorithm registers are not only useful for external transparency, but additionally for internal governance, similar to the way open data projects provide useful information for internal government staff as well as external stakeholders. In many cases, the use of algorithms by government agencies have negative consequences for equity-seeking groups, such as misidentification of individuals by law enforcement (Johnson, 2022). Often, the negative impacts are financial. Algorithms and particularly automated decision-making systems often exclude people or reduce benefits for those who are most economically vulnerable (Eubanks, 2019). The primary value of publishing algorithm registers is to enable citizens to identify and mitigate risks of algorithmic decision-making to prevent harm to vulnerable and equity-seeking groups. Publication of algorithm registers, therefore, support the overall long-term equity-related goals of governments.

Building An Algorithm Register

There are a number of methods for building an algorithm register by governments and civil society organizations. An initial quick and easy method of building a register is to simply survey government departments on algorithms in use. A more comprehensive method is to analyze government budgets, as algorithms are almost always budgeted items. Note that algorithms are a generic term for software applications, automated decision-making systems, AI, and the searches required to determine the use of algorithms need to include a broad variety of different technology-related terms used by government. Procurement processes provide additional details on purchases of algorithms by government departments and agencies. Governments that adopt the open contracting data standard (Open Contracting Partnership, 2022) are ideally positioned for holistic internal and external analysis of government contracts on algorithms. Press releases and news articles are a secondary source of understanding the use of algorithms by government. Algorithms become newsworthy when a discovery of a problematic algorithm has already been made, rather than a more proactive and transparent approach. A final source for identifying algorithms in use by government is legal court cases, where the use of an algorithm has been challenged by a citizen or organization (Brown et al., 2020).

Conclusion

In conclusion, proactively building and publishing an algorithm register minimizes the risk of issue discovery through investigative reporting or court challenges for governments. More importantly, algorithm registers enable citizens to work with government in identifying potential algorithmic risks and address issues proactively rather than retroactively after harm has occurred. Publishing an algorithm register provides transparency in decision-making by governments, and enables citizens to participate in improving long-term decision-making by their governments.

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RESTORATIVE INFORMATION JUSTICE

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Trust comes from repair. It is not simply gained by ensuring no harm will ever happen, which is too lofty a goal for any human endeavor anyway. But trust comes from a promise to not intentionally harm, and if someone is harmed, to do everything possible to rectify the situation. In some instances, greater trust can be gained through repairing a harm than existed in the first place. This concept is central to restorative justice, which unlike the conventional criminal justice response, focuses on repairing the harm caused by the crime or conflict, rather than punishment.

Restoring Our Information Position

Many of the new data protection and technology regulations focus on defining acceptable data use based on property rights and fines for misuse, but only a subset of these laws mention human rights or provide individual remedies. Of the surveillance technology oversight laws in the United States (Williams, 2021a), about ten cities provide a private right of action if the jurisdiction fails to provide corrective actions, but to my knowledge only one organization has used this (Sciacca, 2021). Some provide injunctive relief or actual damages. And two provide a suppression remedy where the government cannot use the data they were not authorized to collect in court. The suppression remedy is interesting; it acts as a sort of "restorative information justice" where the victim is put back in the same position they were before the harm took place. Data harms are more abstract than typical legal injuries (until they are not), and the remedies we consider for them may be similarly intangible, making the most sense in the context of information exchange as it arises. When discussing new policies for data management we should ask where are the remedies for individuals and also what remedy would most closely repair what the individual has lost.

Restoring Our Privacy Protections

If we are talking about repairing the harms of data abuses, we should speak about how the root causes of these abuses – unfettered data collection that fuels business and police surveillance – remain unchallenged. Emerging technologies are accelerating data collection and analysis by the powerful of the less powerful. These unregulated "smart city" technologies are a threat to democracy and foster totalitarianism, panopticonism, discrimination, privatization, and solutionism (Williams, 2021b). While there are few emerging laws on protecting this data, lawmakers are only recently attempting to regulate the root causes of advertising surveillance (Banning Surveillance Advertising Act, 2022) and police use of big data to workaround Fourth Amendment protections (Fourth Amendment Is Not For Sale Act, 2021). To restore justice for the public these exploitations must be stopped at the source.

Restoring Justice

Data and technology can be tools we use for restorative justice throughout our society. We can use AI to interrogate our human biases rather than proliferate them. Machine learning can be used for restorative justice to mitigate risk, rather than predict crime, by being used to surface covariates that are fed into a causal model for understanding the social, structural and psychological drivers of crime (Barabas et al., 2017). Machine learning can also be used to demonstrate biases in traditional methods, like how it was used to demonstrate self-reported pain was more accurate than traditional pain scales for black patients (Hao, 2021). We should be using technology to ensure people are cared for and harms are repaired, not to drive punishment and further harms.

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AI, TRUST, AND THE CITY: ASSETS AND ACCOUNTABILITY

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Budgets are moral documents, as Stephanie Kelton, via Astra Taylor, reminds us. As Taylor works on campaigns for debt forgiveness and Kelton advocates for alternative economic models to remove false scarcity, they are pointing their work on democracy and well-being squarely at the idea of money (Taylor, 2021). It is a helpful tactic, and one that many of us within cities can begin to apply more persistently in relation to tech. What technology are we paying for? Is it working well for us? All of us? Can we consider alternatives for our public tech investments? Can we think about how to build more public stewardship into the future design of tech in our cities?

To improve the governance of - and accountability for - city tech, to answer these questions, we will have to get into the weeds of our local budgets and our civic assets. As anyone that has tried to find their way around government information technology (IT) knows, the house may not be in very good order for outside eyes. But we must get in there, we need to know what our public IT assets are. Cities have been using technology for a long time. The internally assumed a-politicalness of its application by the public service demands more scrutiny.

Consider a short history of government use of technology. Many people that were initially in charge of IT made sure that: computers were virus protected, email accounts were working, passwords were being reset, and patches were being applied. Fast-forward to today, and the nature of technology in the city has bled out of these narrow administrative boundaries. Some public servants are purchasing commercial technologies that are fundamentally shaping public service delivery. This is of concern on several well-trodden levels in the world of AI discourse. Technology procurement has created new political powers within the public service. This transition is leaking democratic accountability, shifting public power away from elected officials towards private interests.

To explore and address the ethics problems and opportunities related to this organizational design situation in government, we can start with the city budget. We, as the residents of any city, need to understand the full accounting of the technologies that we are buying and building. There is a lot of compliant software used in government, but how functional is it? Do staff like it? Is it defensible? As discussed in personal conversations with Seda F. Gürses and Martha Poon, and as reflected in their work on programmable infrastructures (TU Delft, 2020), the supply-side push of cloud infrastructure is incessant. The industry will not seek to scale down public sector investments in tech. It's a market. Evermore data. Where does that leave residents in the conversation?

To push for different city tech, we need an asset map to start from. What do we have? From there,

we can work with city councillors to put forward alternative tech ideologies to the ones most cities are invested in today. In abolitionist terms, to invest otherwise. And not necessarily in products but in people. Different tech approaches in our budgets. Those moral documents.

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ACCOUNTABILITY IS A HIGHER FORM OF ETHICS

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My perspective is closely related to observing the debate about trustworthy AI in the European Union (European Commission, 2022). This debate, however, spans the globe. According to the 2022 global survey of trust levels in governments, its position at the top of the pile has been reinforced by China, which is by no means a hotbed of democracy, yet remains one of the leaders in developing and deploying AI-based tools (Edelman Trust Barometer, 2022).

Should we fetishize trust? Maybe it is one of the signs of mature democracies and an informed society that instead of saying "I can trust government and companies", we should say "I can hold authorities and companies accountable".

In all likelihood, the confidence in the Chinese government and its actions, for example, is not due to the fact that its citizens feel that they are in control and have a sense of influence over its decisions (China Media Project, 2022). They are also deprived of a real right to information about the government's actions and the instruments it uses. (Reporters Without Borders, 2021). Worse, by using mechanisms such as social scoring, the government and the companies working for it show that they do not trust their citizens (Campbell, 2019).

Simply building trustworthy tools is not enough. In my opinion, it is largely an empty slogan, although I certainly appreciate efforts to incorporate an ethical perspective into the creation and use of digital tools. But the narrative should be different. And as modern societies that are democratic or aspire to be so, we have a right to expect governments to show that they trust us. Because trust is a two-way relationship.

Meanwhile, both central and local governments choosing to implement AI-based tools are doing so with an eye toward better citizen control in the first place. Whether it be tools for facial recognition, detecting potential irregularities in the use of public services and benefits, or finally detecting irregularities in the payment of taxes. I am not saying that in some circumstances, deploying these systems is not justified and that they do not serve the public interest (unless they are carefully designed and used in the specifically described manner). But I am arguing that if these are the first examples of practical implementations of digital tools - based precisely on limited trust in citizens - they will not convince them that it is important for authorities that we trust them too. What we really need is a conversation about accountability for using these tools and the impact they may have on citizens. In the same way that legal procedures and a human rights system protect me from abuses of power, I need to be sure that regardless of the ethical attitudes of the producer and the framework governments have built to define what characterizes ethical or trustworthy AI, if something does go wrong, I will know what happened, who is responsible, what the consequences will be, and how I will be compensated.

And as much as I appreciate and cheer for the development of algorithmic impact assessment systems, I am sorely lacking solutions that will introduce an effective system of algorithmic accountability. Citizens' rights are not protected because those in power have the good intention of doing so, but because there is a whole range of solutions to ensure checks and balances, to provide access to information on the actions of clerks and politicians, and finally to enforce liability for violations of these rights.

And just as - with various problems, because no system is perfect - the guarantees of safeguards for our rights work in traditional analogue governments-citizen relationships, they should work the same way when decisions are made, or supported, by machines.

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5 | NEW DIRECTIONS FOR LOCAL AND URBAN GOVERNANCE

THE POSSIBILITIES OF SMALL, LOCAL DATASETS COLLECTED, CURATED AND GUARDED BY CITIZENS

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We will not be able to build the physical and digital spaces we want to inhabit if all our efforts and energies are focused on opposing the current oppressive, extractive and limited system we live in.

A key component, when we think about future spaces, the role of data and the possibilities of communities, is imagination and new design principles, new rules of the game. What is the role of imaging the technologies of the future? And where is our hyperlocal utopia of the services that we want delivered, of the rules of the games in our community, of the allocation of the hard earned taxes that we pay to our local authorities to build infrastructures? And who should be the architect, the artist, the artisan building such futures? At the moment, we only clone realities from others, exporting systems that do not belong to us, do not talk to us, systems not reflecting our social dynamics, not recognising even our physical features, controlling our movements, extracting our value. Clashing with our values.

How can we give away the chance that we have to shape the technologies of our times, take them and own them to fix the problems of our times and build a better future?

I really refuse to take the narrative that it is too complex to build our own systems, that only GAFAM[16] or the Big Tech companies can create the technology we need and that I, that the brilliant people I am surrounded by, that all of us will be excluded from the process of imagining better futures, better possibilities. Why only the Elon Musks and Bezos, comparing the size of their rockets, are the ones who have the chance to innovate? The ones who have the chance to improve the lives of people locally, but instead invest in yet another extractive space race.

When we design and involve communities, public funds and networks, the possibilities expand. An interesting example that we should look at is all the programs of reduction of poverty that took place in Latin America over the last 20 years. For example, *Bolsa Solidaria*, the allocation of benefits to communities. They were using automation and machine learning. They were using the technologies available to scale before it was cool to do so. Before they were even scrutinized. It is very interesting to me because they are doing something that is very close to AI at the hyper local

16 GAFAM consists of the Big Tech companies Alphabet (Google), Amazon, Meta (Facebook), Apple, and Microsoft.

level without a lot of documentation on it, but it has been going on for decades. That made me realize that it is possible. The countries that were running these programs and automating these programs were developing countries, but they had what they needed: context. One of the programs' experts took me step-by-step and he told me, "you know, it's a spreadsheet. It's simple."

At some point, low income countries and cities had the ability – using locally relevant techniques – to analyze what the others were doing; to open source it, replicate it and scale it for the reduction of poverty. And how the very conscientious people who were working at the system level involved the communities to make it better. And that is hard evidence of possibilities.

I am convinced that:

1. A better tech future is possible;
2. It is rooted in the local;
3. It is decentralized – we cannot allocate all the power in a single actor;
4. It is sustainable – if we develop local technologies it is going to be sustainable by design; and
5. It cannot be good if it is not inclusive – openness is something we need to revisit and something I am working on. If it is not inclusive, it is not truly open.

Bianca Wylie started with "small and together". That's the key. I imagine a digital city future and digital AI that can be produced by not only a city but a federation of cities as something rooted in the local with rules written by the community and with benefits going to the community with the companies operating next door: "so if you screw it up I can go and get you and help you fix it."

A small window of opportunity that we have to experiment in this is on climate crisis actions, which cities need. They need our data. Small cities in developing countries need to produce data as well. Let's share, let's scale together and let's fix this problem that we have in front of us. Let's have a federated city commons on specific issues and let's use the tools of our times to solve the problems of our times. What better way to trust a technology?

AI LOCALISM: GOVERNANCE OF ARTIFICIAL INTELLIGENCE AT THE CITY AND LOCAL LEVEL

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(Cambridge University Press)

The proliferation of AI technologies continues to throw up challenges and opportunities for policymakers – particularly in cities. As the world rapidly urbanizes, cities grow in importance as hubs of innovation, culture, politics and commerce. Recently, they have also grown in significance as innovators in governance of AI, and AI-related concerns - a trend widely ignored by existing AI governance observatories. Cities are experimenting with a range of policies, from bans (Conger et al., 2019) on facial-recognition technology to the creation of data cooperatives (Verhulst, 2019). They are also making major investments in responsible AI research (NYCEDC, 2019), localized high-potential technological ecosystems, data collaboratives and citizen-led initiatives.

This "AI localism" is in keeping with the broader trend in "New Localism" (Katz & Nowak, 2018), as described by public policy scholars Bruce Katz and the late Jeremy Nowak. Local jurisdictions are increasingly taking it upon themselves to address a broad range of environmental, economic, and social challenges, and the domain of technology is no exception.

For example, New York, Seattle, and other cities have embraced what Ira Rubenstein calls "privacy localism" (Rubinstein, 2018), by filling significant gaps in federal and state legislation, particularly when it comes to surveillance. Similarly, in the absence of a national or global broadband strategy, many cities have pursued "broadband localism" (Sylvain, 2012), to bridge the service gap left by private-sector operators.

AI localism (GovLab, 2022a) focuses on governance innovation surrounding the use of AI on a local level. Examples of AI localism include: San Francisco's ban on AI-powered facial recognition technology (Conger et al., 2019); New York City's push for regulating the use of automated hiring systems (Ivanova, 2020); Berkeley's new local procurement rules pertaining to AI technology (Acquisition and use of surveillance technology, 2018); Helsinki and Amsterdam's public registries of AI systems used in local government (AI-regulation.com, 2020); and numerous local AI Ethics initiatives.

AI localism offers both immediacy and proximity. Because it is managed within tightly defined geographic regions, it affords policymakers a better understanding of the disparate needs of citizens and the technology's potentials and shortcomings, in a variety of regional manifestations. By calibrating algorithms and AI policies for local conditions, policymakers have a better chance of creating positive feedback loops that will result in greater effectiveness and accountability. AI localism also lends itself to increased citizen engagement.

But AI localism is not a panacea. The same tight local networks that offer governance advantages can also result in a form of regulatory capture. As such, AI localism must be subject to strict oversight and policies to prevent corruption and conflicts of interest. AI localism also poses a risk of fragmentation. While national approaches have their shortcomings, technological innovation, and the public good, can suffer if AI localism results in uncoordinated and incompatible policies. Both local and national regulators must account for this possibility by adopting a decentralized approach that relies less on top-down management and more on coordination. This, in turn, requires a technical and regulatory infrastructure for collecting and disseminating best practices and lessons learned across jurisdictions.

Regulators are slowly beginning to recognize the necessity and potential of AI localism. To improve our collective understanding of what works and what doesn't, we, at The GovLab, launched our AI Localism Repository in 2021 (GovLab, 2022b). The repository serves as a database of all instances of AI localism. Through this platform, users can draw insights from a comparative list of campaigns, principles, regulatory tools, and governance structures.

Building up our knowledge is the first step toward strengthening AI localism. Robust governance capacities in this domain are the best way to ensure that the remarkable advances in AI are put to their best possible uses. To strengthen decision-making processes in local AI governance initiatives, we developed an "AI Localism Canvas" (Verhulst et al., 2021) to help identify and assess the different areas of AI localism specific to a city or region, while aiding decision-makers weigh risk and opportunity. The overall goal of the canvas is to rapidly identify, assess and iterate local governance innovation about AI to ensure citizens' interests and rights are respected.

The implementation of the canvas can be applied to specific AI, a specific challenge or problem, or a geographic context. The canvas has multiple functions: it allows one to capture innovation and think about the relevant and dynamically changing elements together, while also serving as a research template. As such, it can capture points at which fragmentation may occur. The canvas also has a prescriptive function in that it provides a comprehensive framework for checking all the elements that comprise AI localism. Lastly, the AI Localism canvas can help frame reality and inform action.

As AI becomes increasingly important at the city level, new questions around innovative governance will continue to emerge. The AI localism canvas and repository can help ask these important questions by identifying the emerging governance responses and structures for these new technologies to meet the need of the hour.

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WORKING TOGETHER WITH CITY PARTNERS TO FOSTER DATA INNOVATION

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The Centre for Interdisciplinary Research on Montreal (CIRM) has been coordinating the endeavours of the Data for Society Hub (DSH or the Hub) since 2019 as part of Montréal in Common[17], a community of innovation projects within the Infrastructure Canada's Smart City Challenge competition.[18] The Hub's partners, expected to increase in number over time, include the Regional Director of Public Health, Centraide of Greater Montréal, Montréal's Department of Diversity and Social Inclusion, and Montréal – Métropole en santé. A number of Canadian researchers (who remain unaffiliated with the CIRM and DSH) are also actively involved in the design and implementation of the infrastructure and methods that will ensure that the Hub fulfills its mandate.[19]

The Hub's primary objective is to propose a solution that will allow members of the partnership to pool their data. This solution involves technological, methodological, governance, and legal components. For example, the technological component alone encompasses several functionalities: data storage, data transfer, module interoperability, analysis, display and publication. Each of these processes require deliberation regarding the best tools and practices available to ensure security, quality control, and timeliness.

There are two primary forms of civic engagement within the solution we are developing for the Hub. The first requires all organizations participating in and benefiting from the partnership to use the shared data for the common good. The concept of "common good" is rather abstract and broad, and has yet to be fully explored by the Hub's partners. We are currently discussing the nature and respective mandates of the organizations gathered within the Hub, of which none are profit-oriented. Conversations will soon be held to thoroughly establish the criteria for admission and conduct within the partnership, as well as the ways in which data can be used. These policies will then be documented in a legal contract and will serve as the basis for the licenses that will be issued for data transactions and exchanges.

The second form of civic engagement is to integrate citizens into the governance structure. How can we ensure that data is used for the benefit of citizens without involving them in the decisions and the discussions? But, on the other hand, which citizen is likely to represent all citizens in their diversity? What mechanisms can be used to ensure effective and accountable

17 See: https://montreal.ca/articles/montreal-en-commun-la-ville-comme-laboratoire-15119
18 See: https://www.infrastructure.gc.ca/cities-villes/winners-gagnants/50m-montreal-eng.html
19 The researchers are: Laurette Dubé, McGill; Anna-Lisa Aunio, Dawson College; Catherine Pâquet, Laval University

decision-making? Answers to those questions will be provided in the work stream on data governance that we launched in 2022 and that will carry on alongside other initiatives related to technologies, methods, and law until the end of the project in 2024.

A key challenge for the Hub with respect to civic engagement is that of accessibility. Is it best to use commercially available off-the-shelf technologies and systems that tend to be very expensive but very accessible, or to develop tools using free, open source software, but whose long-term development cannot be guaranteed and which present challenges regarding accessibility? This question may seem pointless, since the Canadian Smart Cities Challenge mandates the use of open source technologies and software. However, since the Hub's partners already rely on certain proprietary software for tasks such as data analysis and building dashboards, the Hub will rely on open source technologies to develop high-value components, and intends to offer connectors to enable interoperability between components of the solution.

The next steps consist in articulating in a coherent solution the technological, legal and governance aspects, while setting up a community of practice able to agree on the use of the data and to value these data by their mutualization. To achieve this, we will launch a first use case whose objective will be both to test the minimal components of each module of the solution, and to ensure that each partner can influence the development of this solution, and understand the role they can play within the community of practice.

TOWARDS SENSIBLE INTERFACES

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From sensors to surveillance cities

Our cities are home to more and more sensors. As they collect data from urban systems that can be analyzed and optimized, networks of sensors are often considered basic infrastructure of "smart cities". Although such infrastructures aim to bring efficiency, their design also facilitates the emergence of surveillance cities. In this essay, I will explore how we can reverse this paradigm by urbanizing technology and transforming sensors into sensible interfaces.

Sensors are purposely designed to be *seamless* and *invisible*. It is interesting to note that this design results from a techno-economic imperative. Indeed, sensors' reduction in size over the years has been guided by cost optimization and their average production price has reduced to one-third in less than a decade (Statista, 2021). Moreover, sensor invisibility expresses a technical ideal. As the computer scientist Mark Weiser says: "A good tool is an invisible tool" (Weiser, 1993).

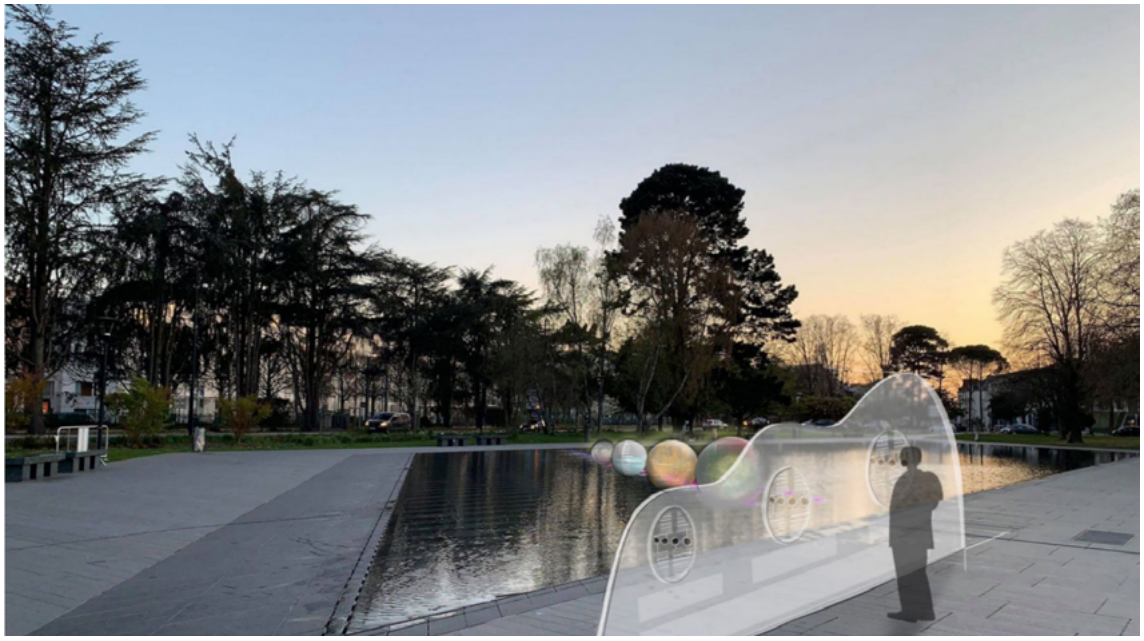
But by seeing without being seen, sensors tend to be part of what Michel Foucault described as a Panopticon (Foucault, 1975). As such, the networks of sensors create distrust among citizens and discord among urban stakeholders. Initially open and owned by people, the city becomes a surveillance system characterized by opacity.

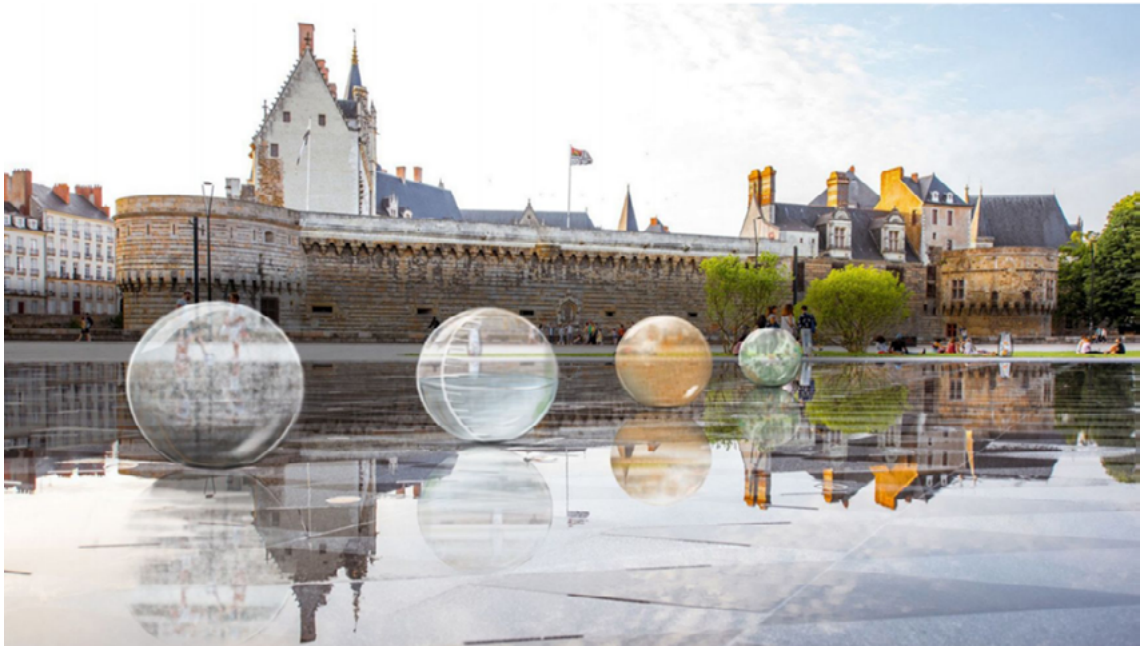
Materializing data through sensible interfaces

Instead of creating invisible sensors that enhance surveillance, we should design interfaces that materialize data (D'Ignazio et al., 2019). It is usual to imagine screens or smartphones when talking about interfaces. But one could argue that smartphones also isolate users from the urban environment. It creates "smombies" - a suitcase word formed from smartphone and zombie to refer to city dwellers who are constantly looking at their phones (Zhuang & Fang, 2019).

Though, smartphones represent only a certain way of interfacing bits. Information can be transmitted by other mediums than screens (e.g., wood, water, and light) and stimulate other senses than sight (e.g., touch, hearing and smell). We could talk about "sensible interfaces" to characterize these low-tech and multisensorial information supports. Unlike smartphones that concentrate the digital world in our hands, sensible interfaces materialize information and distribute it in the urban environment (Hartmann, 2005). By doing so, they create an augmented environment in which people can make enlightened decisions. Transparency not only brings trust but also efficiency.

On this subject, Urban AI recently collaborated with the French Institute of Design, The Nantes Metropolis, the Nice Côte d'Azur Metropolis and three French design schools to imagine sensible interfaces. Below is one of the projects from this collaboration:





Credits: Urban AI – École de Design de Nantes

This team proposed to materialize data collected by Nantes Métropoles on the Loire River by using water bubbles on the water mirror. Each water bubble embodies different data of the Loire (water level, chemical pollution, temperature and organic pollution). Here, data are interfaced with a low-tech material (water) and distributed in the built environment. Unlike the smart city paradigm where data are collected for experts or innovators, sensible interfaces make them available and accessible to all. Last but not least, they amplify cities' speech and (re)make public spaces a meeting point where urban dialogue flourishes.

Urbanizing technology

This effort to embody data highlights that sensors cannot remain only techno-economic products.

They need to become a social object and a catalyst of urbanity. In this context, data becomes a raw material to shape the city. This process of designing and developing technologies that promote urbanity and cityness is what we call, drawing from Saskia Sassen's work, "urbanizing technologies" (Sassen, 2021). Applied to sensors, this concept leads to the emergence of sensible interfaces. But the same logic can be used to reimagine many other technologies.[20] It is about designing and using technologies as tools that help us dwell upon the earth and with each other.

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THE SMART CITY AS A SHIFT IN THE LOCUS OF KNOWLEDGE AND POWER

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Technologies of surveillance and datafication are increasingly being deployed into public spaces and, once networked, they are repackaged under the umbrella term "smart cities". Many of the academics and experts in this field previously worked on opening government data. Analyzing this prior experience at the intersection of technology, data and government might help us understand the values of much of the community that is working around issues like government regulation of AI and concepts like smart cities.

The project of opening of government data was promoted with the expectation that it would strengthen democratic citizenship. In particular, it assumed that, if citizens had the appropriate access to the data held by government offices, then the number of actors capable of understanding governance practices would increase, and so would the quality of public debate and the breadth and depth of participatory governance practices. In short, through open data, the type of intelligence that is harnessed, at best, by a handful of senior technocrats, would be redistributed back to the public. The democratization of access to data was equated with the democratization of governance.

In practice, however, this project failed to achieve its goals. Among the many reasons was that the individuals do not have the time, expertise, interest or infrastructure to make sense of the vast amounts of data they were being allowed to access. *Build it and they will come.* But they did not, and governments released vast amounts of data that a handful of big multinational tech companies did in fact collect, mine and often repurpose into part of their proprietary systems (Bright et al., 2015; Ortiz Freuler, 2016). *Government as a Platform* (Margetts & Naumann, 2017) became the next conceptual package. At this point, the tension between the democratizing elements and the privatizing elements of the narrative were coming to the fore. Part of the privatizing ethos was implicit in the move from evidence-based policy-making to data-driven policy-making. A rhetorical move that implied reducing the scope of autonomy of public officials. Software should be allowed to execute decisions based on a predefined program. The underlying assumption was that public officials cannot be trusted. Data can be trusted. Thus, labour could be replaced by transparent and trustworthy machines. Power was not democratized, but rather consolidated into fewer hands. And in many cases, consolidated in the hands of private companies running the infrastructure upon which governments increasingly depend to operate.

The narrative around smart cities should be seen as the extension of this process. This time it is

not data existing within offices that will be relied upon for governance. Rather, new processes will be deployed to datafy our shared public space. Whereas the processes that took place within government offices remained anchored around existing government processes and bureaucracies around it, the datafication of public spaces does not have such an anchor. We can therefore expect much more radical shifts to take place.

Whereas early sketches of machines typically suggest the machine will be designed to fit into a human world, over time we have come to discover it is humans who are pushed to adapt into the world built for the machines. The Jetsons' Rosie robot never existed beyond the cartoon. We never got the robot to pick up dirty dishes from the table, wash them over the sink and put them into storage. Rather, a section of the house was sealed off into a box where the dishwashing machine can efficiently perform the task of washing dishes after we place them there. We can expect the same to take place in cities.[21] We saw the urban sprawl transformed with the advent of cars. Highways often split neighbourhoods in half, enabling a suburban life combined with extended commutes. The introduction of sensors that monitor and manage the urban environment is likely going to lead to a restructuring of the space and the social relations that take place within it. The transformation of the spaces through which we navigate to our work, meet others, and coordinate political action. Our urban environment will be boxed and subjected to the logic of the machine and a handful of designers and managers. What will become of the city if we box it up following the same logic that led to a dishwasher?

How will an undocumented migrant navigate a smart city? How will a protestor? How will a homeless person? A beggar? Regardless of the speculative details that might have gone through our heads, we most likely agree their lives will become more difficult as a result of the technologies being deployed in public space. In some cases, like that of the undocumented migrant or the protestor, perhaps it is the extreme transparency of their existence that will be problematic. In other cases, perhaps it is the *invisibility* that becomes problematic: not having access to the appropriate sensors or credentials might mean that vehicles will not see a homeless person or people will not be able to interact with a beggar. At the core of this fear is the understanding that technology is not being developed and deployed to reduce or resolve power imbalances, but rather to increase efficiency (Eubanks, 2018).

The key question is still how to ensure that any deployment of machines operates to strengthen the distributed exercise of power that is implied in robust notions of democracy. Three transformative paths lie ahead. The first one involves rejecting the process of datafication by denying that the world around us can be translated into data. An epistemic shift that is unlikely to occur. A second path involves regular assessment of outcomes, such as quality of life, happiness, etc. The challenge, in this case, is ensuring that the data are trustworthy. A third path, and perhaps the most promising one given the relative novelty of some of the underlying questions being raised, is to focus on the process. This means involving the public in a slow process of deliberation and participation in decision-making around the reshaping of public spaces, with particular emphasis on systematically marginalized groups.

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AI'S BOOSTERS DON'T LOVE YOU BACK

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Do we need to like each other to trust each other? Sociologists distinguish between two aspects of trust: credibility, or the belief a trusted party can do what they promise; and beneficence, the sense that the trusted party has the trustee's welfare in mind. We might say colloquially that the trusted party should have the trustee's best interests at heart, but this is not entirely true. In Western culture, the heart is associated with positive emotion, especially love. Yet there is no reason one must love to trust. "Trust," Ronald Reagan famously suggested in reference to arms control, "but verify": love in this view is a heuristic for avoiding something—perhaps surveillance, perhaps accountability.

Homophily, love of the same, can be a recipe for disaster as Wendy Hui Kyong Chun has recently observed. Today, we are myriad, living in very different epistemic commons structured by algorithmic systems, social media platforms, and AI analyses. These sociotechnical objects mediate deliberately for emotive effect. Attentive and affective force are understood by corporations, governments, individual influencers, whomever, as finite resources to be captured, directed, and exploited if possible. The "commons" has thus in some cases become, paradoxically, a tool for oppression—many communities heavily mediated by digital media (perhaps especially those on the right wing) are commons of mutual dislike and shared grievance. Hatred of the other serves a similar heuristic purpose as homophily: to signal we can relax the inner eye of reflection, to indulge in the ersatz authenticity of the under-considered feeling.

Digital technologists, and by extension technologies, are strongly predisposed to understanding human emotion through the lens of something called Basic Emotion Theory (BET). The historian of psychology Ruth Leys argues the critical fact about BET is that it is anti-intentionalist: emotional forces, to simplify radically, motivate us prior to conscious intentions. Within such a paradigm, how could emotional expression not be understood as "authentic": if our feelings motivate, they must be especially core to our sense of self, expressive of our "inviolate personality."

The paradox of digitally mediated systems surveilling emotional expression is that partial and incomplete data about the outward traces of our subjective feelings are presented to us as objective evidence of those felt interior states. External representations of our "authentic" feelings are poor proxies: how can they capture the complexity of emotion, including the capacity to reflect and reshape it? In the age of emotion AI, human feelings are simultaneously presented as hypernatural and highly constructed. "Facts don't care about your feelings," the overemotive trolls of the alt-right sneer, when they mean they believe their feelings give them license not to care about facts.

This paradigm of emotion AI poses pressing problems for cities and citizens. Welfare and credibility can be present without love or fellow-feeling: they can be and often are motivated by hard-headed self-interest, pride, complicated

mixes of emotions. Accountability is a set of mechanisms, a process not a feeling. And commons of grievance are easily exploited by monopolists and privatizers, who otherwise would be unable to gain traction against a broader sense of the public good as mutual aid without too much sentiment. Trust, and always verify: neither AI nor its boosters love you back.

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MORE HUMAN INTELLIGENCE, LESS ARTIFICIAL INTELLIGENCE

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Semantics and language, in addition to being powerful, are very positional, by fixing much of the constructs that we make of their meaning in the brain. When we say AI, we think of individuals capable of creating really advanced technologies. The truth is that behind AI technologies, there is a lot of human work. When we talk about AI we must not forget that we are talking about computer programs (code) designed, developed and maintained by people, which act and influence people. If we want to generate trust, we must take into account these considerations.

AI is more human than technological. There are no magical elements involved. It is not plausible that this technology made by humans for humans will end us. And it will not get ahead of us either. It is true that AI allows us to do new things. It also allows us to relate differently, and communicate differently. However, deep down the concern is that a group of humans will take advantage and control over another group of humans. Machines have no feelings, emotions, wills, purposes, or autonomy. However, humans do. And that is where public power must emerge to control what is done and what is not done. Because algorithms can generate inequalities.

Using technologies that allow automated decisions without regulation, raises doubts. Especially when we do not know the rules that govern these decisions. It is what is known as black box AI algorithms. They are the ones that Frank Pasquale talks about in his book, "The Black Box Society: The Secret Algorithms That Control Money and Information" (2016). In it, the author proposes to create AI programs considering: (1) That the results to be obtained must satisfy a series of rules, policies, principles, etc.; (2) Evaluate the consequences of the results obtained by these algorithms; (3) Incorporate explicitly and implicitly the values shared in the society in which they will be introduced.

From an economic perspective, our digital habits can be very expensive and compromise our fundamental rights. But from a social perspective, it can also be very expensive. Minority groups that are frequently forgotten in technological development must be considered so as not to generate more inequality. We cannot do our day-to-day activities, for example, granting credits, interacting with other people, with algorithms trained by digital majorities (e.g., mostly white men), given that digital minorities also exist. Apart from this, citizens should have rights and control mechanisms over the data they generate, regardless of where and how it is generated. This control implementation, I think, should be something similar to what happens to us with the mobile phone number. Keeping our number is

an essential right of any mobile phone customer. When customers go to another company, they take it with them, and the company cannot object. Could we introduce a similar logic for the rest of the data we generate?

Why not have the right to take it with us and that the new service we choose can interpret the data and make us feel welcome? Even if the platforms we opt out of erasing everything it knows about us. In addition to saving time, I think this would help us gain confidence in the companies we leave behind. Maybe one day we can opt back to these platforms. But right now we have the opposite feeling: distrust.

Open and democratic societies need to ensure the conditions, especially in terms of privacy. People must design their lives freely. In this advanced phase of the digital age, public space has largely become digital. We talk, we buy, we interact and we even build in digital environments. Therefore, it seems unreasonable that this new place is owned by a small group of companies. Companies with their interests, purposes, motivations and intentions, as we said at the beginning. Therefore, people with private interests that implicitly regulate it, given that they exceed the capacity for anticipation and technological acceleration of our legislative capacity.

AI technologies can improve education, health care, urban mobility and culture. Medical diagnoses can be customized to be preventive and personalized. For example, the medication and active ingredients that cure us can be more efficient and involve fewer side effects. Another improvement can be seen in how mobility in our territories could contribute less to pollution. Also, AI could use creativity to generate new cultural sectors. Consequently, not all AI is dedicated to exploiting predictive algorithms aimed at profiling people. But what AI must have is a development, deployment, and use agenda that does not privatize the public sphere.

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FROM INTELLIGENCE TO WISDOM: CAN A SACRED CIVICS LENS INFORM PATHWAYS FROM AI TO AW?

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AI is and will be revolutionary, but can it be wise? We have advanced technological capabilities of AI at almost unimaginable speed and scale. And yet. Look around. Tech industries are in many ways fanning the toxic flames of our metacrisis. And governance regimes lack capabilities to learn emergently at the velocity required to establish effective regulatory infrastructures in tandem with the tech for it to serve the common good. Bref, advanced tech and AI are not advancing our collective wisdom.

Could AI evolve to AW in mutual support with peoples and societies becoming wiser?

Artificial wisdom is described sometimes as AI collaborating with contemplative neuroscience. But wisdom is much more than intelligence and science – it adds layers of meaning, spirituality, kinship, phenomenology, intuition, and emotionality to cognition. Wisdom is holistic and complex. It involves cultivating cumulative practical knowledges, understanding multiple consequences of actions, and seeing pluriversally. It doesn't provide for a singular, essentialized way of seeing and addressing challenges, and it isn't a state to achieve but rather a presence of interbeing with other humans and more-than-humans. How could AI reflect diverse cosmologies, which are not well represented in the myriad data that machines learn from? Applying a sacred civics lens could help go deeper than the technologies and into cultural and spiritual roots of our greatest challenges.

So what is *sacred civics* (Engle et al., 2022)?[22] By sacred we mean unique, intrinsically worthy of respect and dignity; and civics refers to relationality of proximate peoples and life forms in place-based communities. A sacred civics would have residents collectively shape what the city can become in ways that we can individually and collectively flourish for the long term. Following are two dimensions of applying a sacred civics lens.

1. Aspiring to higher purposes and higher order accountabilities

A sacred civics recognizes peoples, lands and natures as sacred to lay the foundations for

22 Chapters 1 and 2 set out the sacred civics thesis along with foundational keys and pathways of praxis to open imaginaries and possibilities for seven generation cities.

meaningful civic engagement and city building, and asks the question:

» How can we build digital, physical, and social infrastructures so that children in seven generations will thrive in just, radically inclusive, caring, and regenerative cities?

We daily enact individual and collective responses to this question, often in unconscious ways. Conscious and intentional decision-making is a starting point of wisdom, including consciousness of what we are *not* seeing, understanding and acting upon—our blind spots. Can AI evolve to AW with this level of consciousness? And will those of us alive now – who have tremendous responsibility to help change civilizational trajectories – have the wisdom to build and govern technologies with higher order aims and accountabilities? And how do we hold such critical aspirations in the design and decisions of infrastructuring for meaningful civic engagement?

2. Awakening the wisdom of the commons

Communities are increasingly seeing the transformative possibility of the commons and commoning to enable agency and create tools to organize differently for a better urban life for everyone, and which places reciprocity with nature at the heart. Commons thinking and practices often mirror the principles embodied by Indigenous treaties and covenants, Afro-diasporic models for mutual aid and cooperatives, and many diverse cultural examples of collective property regimes, farming and housing cooperatives, community land stewardship, and knowledge and data commons.

» How can collective wisdom be cultivated to realize visions for a sacred civics embeddedness in city building in ways that harness value of the commons in the interest of public good for all life and into the future?

Devising policies, systems, and practices that address this question is a key collective wisdom opportunity for us as city builders. What would it mean to bring such wisdom to the centre of civic engagement? And could AI evolve to AW to support this?

Moving forward, we are interested in wisdom that can manifest from practical, embodied, relational, and multiple place-based knowledges, along with experiential, intuitive and other ways of knowing that go beyond the Western-scientific, instrumental-rationality. We're inspired by collective wisdom cultivations and expressions such as ubuntu, buen vivir and sumak kawsay, Etuaptmumk/Two-eyed Seeing, and in co-creation with artists. Many traditions and disciplines also associate wisdom directly with love, spirituality, and meaning.

A sacred civics lens can help open imaginaries and possibilities for integrating a plurality of collective intelligences, including human, nature, and artificial, and bring them to bear in civic engagement design and deliberations and towards the development of collective wisdom, perhaps even evolving AI to AW. May we cultivate the wisdom to know the difference.

REFERENCE LIST

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LIST OF ORGANIZATIONS AND PROJECTS

<A+> Alliance for Inclusive Algorithms

AI for Humanity: Mila - Quebec AI Institute

AI for the Rest of Us

Beeck Center for Social Impact & Innovation

Brazilian Institute for Consumer Protection (Idec)

Center for Democracy & Technology

Carnegie Endowment for International Peace, Technology and International Affairs Program

Centre for International Governance Innovation

COCo

Data & Policy

Derechos Digitales

Digital Public

Feminist And Accessible Publishing and Communications Technologies

Global Data Barometer

ILDA

McGill University, Centre for Interdisciplinary Research on Montreal (CIRM)

McGill University, Data for Society Hub

McGill University, Department of Geography

McGill University, School of Urban Planning

McMaster University, Department of Political Science

Mozilla Foundation

My Data Rights Africa

Open Knowledge Foundation

Open Spending EU Coalition

Paradigm Initiative

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TU Dortmund

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University of California Berkeley

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University of Ottawa

University of Ottawa, Centre for Law, Technology and Society

University of Toronto, Faculty of Information

University of Toronto, OISE

University of Virginia, School of Data Science

University of Waterloo

Urban AI

Veracify

Western University, Faculty of Information & Media Studies

Women at the Table

York University, Refugee Law Lab