# e-book

## MICROWORK INSIGHTS: FROM PRESENT TO

# FUTURE

Chapter 1 Microwork: An introduction by Julian Posada

Chapter 2 Microworking in Toronto by Marco Campana

Chapter 3 Invisible Gigs: Microwork in Canada by Alastair Cheng

Chapter 4 Aggregate action, complexity, and microwork by Ana Matic

Chapter 5 Microwork futures: Strategic perspectives by Cheryl May

Chapter 6 Investigating personal futures by Maggie Greyson



## Microwork: An introduction

According to contemporary discourse, artificial intelligence (AI) is exempt from human action and superseding physical infrastructures. However, recent studies on AI's materiality recognize the immense network of natural resources and human labour that spans the entire planet. With our current resources, we can create, sustain, and regulate intelligent machines. This chapter was written by **Julian Posada**, a PhD student at the Faculty of Information and a Junior Fellow of Massey College. His research focuses on the personal networks of workers of digital labour platforms.

With our current resources, we can create, sustain, and regulate intelligent machines. From the extraction of resources to the treatment of information, the creation and distribution of technology to the disposal and recycling of outdated devices, artificial intelligence requires workers at every step.

In this context, microwork involves workers that provide and transform data destined to train and improve machines. These independent contractors work remotely and perform fragmented tasks – often requiring just a click-through online digital platforms. Their actions are essential for automated and intelligent systems since they play a part in the learning and correction of these systems, **sometimes even impersonating these systems when they fail to provide results**.

One of the first and best-known microwork platforms, Amazon Mechanical Turk, was named after an 18th-century automaton that toured throughout Europe, playing with—and even defeating—individuals at chess. In reality, and unknown to spectators, a concealed human player operated the automaton from within. Thus, much like the Mechanical Turk, microwork platforms create the illusion of automation by outsourcing the labour of their workers and rendering their actions hidden to the public. This "invisibilization" is part of an ongoing historical trend that includes **19th-century pieceworkers who effectuated small tasks from their homes for factories**, or **human computers that provided calculations for research institutions**.

#### Example #1: Content Moderators

Every second, web users upload an incredible amount of digital content to platforms, including video, audio, and images. Many companies deploy algorithms to detect and remove inappropriate content posted online. However, automated systems are oftentimes incapable of identifying it. If required, humans need to step in, review these posts, and remove them. These workers often suffer from intense psychological distress due to the nature of the content they are evaluating which, in some cases, includes examples of extreme violence and exploitation. Big technology companies outsource this labour to other companies, but these workers also operate through microwork platforms. As independent contractors, these workers are not entitled to psychological help through their employers. In some cases, confidentiality contracts forbid workers from discussing the nature of their work.

## What is a platform?

Since microwork often involves externalized workers who can operate from anywhere in the world with an internet connection, companies rely on digital platforms to coordinate the offer and demand of work. In general, platforms **are programmable digital infrastructures that exchange data between different users**. They include social media websites like Facebook or e-commerce companies like Amazon.

Some of these platforms specialize in labour exchanges, including freelancing sites like UpWork and on-demand apps like Uber. From a labour transaction and geographical scope point of view, not every platform is the same. Some platforms allow complex activities, while others outsource fragmented tasks; workers may perform tasks bound to specific geographic locations, while others can work online. In an ecosystem of platform labour, microwork platforms are web and crowd-based. Requesters allocate the same tasks to a multitude of users around the world.



Microwork platforms within the platform labour ecosystem

#### Example #2: The "Microtasks"

The French DipLab project identified the following tasks available on microwork platforms:

Data entry · Image labelling · Document digitization · Survey responses · Content moderation · Software test · Product classification · Web searches · Voice recording · Translation · Transcription

## Working conditions

Microwork platform workers are a hidden population due to the nature of their jobs, which makes them difficult to reach. Research on online work, including micro-tasking but also other types of remote freelancing, suggests that the supply and demand for labour is often—but not always—distributed between high-income countries and nations in development. The demographics and geographies of micro-work change depending on the platform. For instance, workers of AMT are primarily male and located in the United States and India. At the same time, those working for French platforms are predominantly women and located in France and francophone areas of Africa.

In most cases, the people who operate these platforms are not considered employees or workers, but independent contractors. Therefore, they lack the social protections often tied with employment such as fair and guaranteed income. Nonetheless, workers value the flexibility of platforms which allows them to work remotely from anywhere in the world, and the revenues from these platforms are, in many cases, essential, even as secondary sources of income.

Online platform work is also characterized by superfluity and fungibility. In other words, workers feel that they are easily replaceable due to the large number of workers in relation to the offer of tasks, and **platforms rely heavily on reputation scores and evaluations to distribute these tasks**. Workers are constantly reminded that they can be fired quickly and at any time, as platforms can delete their accounts easily and without recourse. The intermediation of platforms further alienates workers, as **some ignore the identity of their employers are, and the majority don't know the function of their work**.

#### Example #3: "Deep Labour" Platforms

In recent years, there has been an emergence of new microwork platforms that shift away from the business model of earlier platforms like AMT, which allowed different kinds of tasks. These platforms specialize in a particular sector, such as exclusive training for artificial intelligence systems. Moreover, while non-specialist platforms coordinate the advertisement of jobs and the recruitment of workers, these newer platforms outsource these elements, making their operations challenging to trace. Some scholars classify this type of platform as "deep labour." Take, for example, platforms that focus on training algorithms for self-driving cars that request their workers to provide image classification, object detection or tagging, landmark detection, or semantic detection. Daily internet users provide similar data when they are asked to detect objects through ReCAPTCHA to prove that they are not robots. However, self-driving cars require more complex tasks fulfilled by microwork.



Tagging for self-driving cars



Segmentation for self-driving cars

## **Recent Initiatives**

Due to geographical dispersion and lack of face-to-face communication between workers, achieving collective organization—and unionization—in online labour contexts remains difficult. In the case of microwork, workers mainly rely on online communication. For instance, 90% of workers on AMT use forums to communicate. In the past, workers have successfully pushed for better working conditions, even on their own. One of the best examples of worker and academic action towards fair online labour is Turkopticon, which allows AMT workers to rate their requesters. Before its creation, workers were the only ones being evaluated by their employers, creating a significant imbalance of power. Thanks to this initiative, workers can rate requesters in terms of communicability, generosity, promptness, and fairness.

Regarding regulation, it is challenging for governments to address microwork platforms due to the transnational nature of their operations and the difficulty of assessing their transactions. In some cases, governments and policymakers, notably in developing countries, welcome online labour platforms as a means of reducing unemployment. So far, regulatory examples of labour platforms include mostly location-based ones like Uber instead of web-based cases.



# Microworking in Toronto

Microworking in Toronto means low wages, and it always lacks benefits and job security. \*However, the demand for online labour in Canada is high and increases every year.

\* Source: The iLabour Project, OLI

This chapter was written by Marco Campana, a member of the microtasking research team. Marco Campana is a consultant specializing in employment, immigrant and refugee services. His focus is on helping agencies to harness technology in client service delivery.

## Defining microwork in Toronto

If you're not familiar with the term "microwork" you're not alone. But you're likely familiar with the notion of the gig economy. Think of microwork as the hidden, service-based, and most precarious work of the gig economy. Here are some of the names you may have heard:

crowdsourcing for pay | digital labour | ghost work | human-based computation | human intelligence tasks | microtasking | microjobs

Before designing solutions, we needed a common definition. The definition used for this project is:

- Microtasking is not part of the standard employment relationship.
- The work involves taking on short tasks (i.e. 15 minutes to a few hours).
- A microtasker usually takes on a variety of different tasks from a variety of different firms/people.
- Microtasks are found and undertaken on a microwork platform accessed via the internet.

## The troubling trends

Microworking in Toronto exists on the fringes of non-standard employment. At the same time that it is falling outside the scope of many workforce stakeholders, demand is growing. Microwork also spans a vast number of occupations – from knowledge workers to service-level workers. Microwork's near-invisible status is problematic.

One of the troubling trends we identified is *People as a service*. The demand for task-level outsourcing is increasing. And as microwork platforms simplify coordination with a vast pool of taskers, permanent jobs can be broken into specific (including *very* specific) tasks. Microwork.

Studies show that the number of people in standard full-time employment in Toronto is falling. The Toronto Foundation's Vital Signs Report Issue Area 3: Work found that "Young people and newcomers are disproportionately finding themselves in these jobs." **66** The on-demand economy is one of the most precarious labour markets in the GTA. Workers in this sector are considered independent contractors and therefore are denied protections like minimum wage and overtime pay provided through the Employment Standards Act. Their work is contingent upon service demands made through an online platform, with the expectation of just-in-time service delivery.

## - Sharing economy" or on-demand service economy? CCPA

Note: The CCPA study focused on Uber, food delivery, cleaning, home repairs and others.

## A path to a career or precarity?

The Brookfield Institute report, Future-proof: Preparing young Canadians for the future of work, considers whether part-time microwork and other gig economy work create a career pathway, or only reinforces existing precarity. Even more thorny is the question of who might experience which path.

**66** The gig economy is being experienced differently by different workers. Those with highly specialized, in-demand skills can acquire a diverse array of interesting, high-paying jobs while being afforded the ability to structure their own working arrangements. For lower-skilled workers, gigs can mean temporary, contract or on-call work with lower wages and a lack of benefits and security... This is an opportunity as well as a challenge. Freelancing can provide more flexibility and job experience to highly skilled workers, which can, in some cases, help youth transition into full-time employment, if they so choose. It also means increased uncertainty and working without some employment benefits that have yet to catch up to this new reality.

- Brookfield Institute, Future-Proof

## T.O. grind

Drawing on over **500 signals**, we also identified the *T.O. grind* as a microworking in Toronto trend. Although the world's biggest microwork platform, Amazon Mechanical Turk (AMT), has been around since 2005, microworking in Toronto remains relatively unstudied. Added to that, the average person doesn't know much about it. But there's little argument that Toronto residents face rising affordability challenges.

The Online Labour Index confirms that technology is also creating much of the demand for microwork. We need to pay attention to Toronto's rising global tech status.

The Bank of Canada recently released **The Size and Characteristics of Informal (Gig) Work in Canada** with new survey questions.

**66** Earnings motives were the primary reason for engaging in such work. Income earned from informal activities tends to be lower than income earned in a formal job for an equivalent amount of time. Moreover, participation in informal jobs also likely reflects precautionary motives: those who did participate in informal work had a higher perceived probability of job loss over the coming year and more irregular work schedules.

Part-time workers (including those who are looking for full-time work) are the most likely to engage in informal paid activities, and just over one-third (37 per cent) of respondents participated in such work as a result of weak economic conditions. Moreover, slightly over half of respondents would substitute informal hours for hours worked in the formal sector, for no increase in pay.

- Bank of Canada, Staff Analytical Note, 2019-6

## The OLI tracks demand

The Oxford Internet Institute's Online Labour Index (OLI) regularly updates a comparison of supply and demand flows for online outsourcing platforms. However, the OLI represents the broader platform freelancing market, not just microtasking portals. Canada ranks high for employers using online outsourcing platforms. Hence, it is a growth area to keep an eye on.

Thanks to OLI, we know something about how many companies in countries are using online outsourcing platforms. We also know that it is increasing. On the other hand, little is known about microworkers themselves.

The TWIG microtasking project was designed to be open to microwork as high-skilled or lowskilled work. For the most part, however, microworking in Toronto means low wages, and it presently lacks benefits and job security.

The International Labour Organization (ILO) found that taking unpaid work into account, microworkers earn a median hourly wage around USD 2.00 per hour. The mean wages of microworkers amounted to USD 3.13 per hour.

So, not high-paying. Indeed, not even close to minimum wage in Toronto.

Recommended: What have we learned from the market for Online Labour? OLI



# Invisible Gigs: Researching microwork in Canada

A review of what we know.

This article was written by **Alastair Cheng**, a member of the microtasking research team. Alastair is an editor who consults for business and non-profit clients. He previously covered culture and public affairs for the Literary Review of Canada.

**66** It's like playing Etch A Sketch or a video game where you colour in certain dots.

– Harry K.

That's how Vancouver microworker Harry K. describes searching medical images for breast cancer cells, then manually tagging them. As he explains to a *Wired* writer, it's "**tedious and detailed**."

The task's especially slow for a nonspecialist like Harry: he works full-time at a large packaging company. "A couple of training screens" and a quiz were the only preparation required.

Harry found this work on what's now called Figure Eight. Like Amazon Mechanical Turk, the platform helps easily outsource low-skill digital tasks.

The image-tagging "requester" here was a Harvard medical professor who co-founded PathAl. (The cancer diagnosis startup has since raised over \$90m in funding.) Crowdworkers like Harry then competed to snatch up the tasks, as they would any appealing work on the platform.

## Why microwork matters for Canada

**66** The global market for machine-learning related data annotation grew 66% to \$500 million in 2018 and is set to more than double by 2023.

- Cate Cadell, Faces for Cookware

Microwork quietly keeps the digital economy going. It's vital for everything from training AI to bridging "automation's last mile," as when Uber uses humans to confirm driver identity. But many people don't even know the workers handling such tasks exist.

This trend seems particularly significant for Canada. Employers here are hiring ever-more freelance digital workers, according to the **Online Labour Index**. It measures postings on five major freelance platforms to track broader trends. From 2016 to 2018, the indicator showed a **30% increase in global demand for online labour**.

In this same period, though, postings from Canadian requesters actually doubled. And the sort of research fuelling **Toronto's Al boom** has long relied on microwork.

#### Economic opportunity or threat?

It can nevertheless be difficult to evaluate the possibility of Canadians increasingly hiring or working through microwork platforms. Even Harry's situation can quickly start to feel ambiguous.

His pay for the cancer image processing was incredibly low. A pathologist in the requester's home country might make \$80 USD per hour for such tagging. But Harry earned a cent per minute. Even outside Vancouver, the hourly equivalent doesn't come close to covering cost of living anywhere in Canada.

But Harry also explains he quickly abandoned the cell-tagging task for other work. So we can't tell how much it represents his broader microwork experience — or what the realistic alternatives might be.

He clearly got enough out of it previously to continue. Harry actually estimates he's completed 25,000 other tasks. The earnings **flexibly supplement** his wages, helping pay legal bills and child-support from a bad divorce years earlier.

"If I had the opportunity to not do my day job and do crowdworking instead," he ultimately says, "I would."

Such tensions can make microwork difficult to interpret. Is it a creative hustle that can "**provide** a steady income," or "a new kind of poorly paid hell"? Or something else entirely?

### The bigger picture

To properly evaluate any answer, we first need some basic facts about microworkers. How many are there, for example? What are they paid? And *who* are they?

Microwork markets are complex: highly varied, rapidly evolving and often opaque. So without such baseline information, discussion collapses easily into people talking past one another.

That's partly because it's easy to find support in such markets for a wide range of sweeping judgements about them.

This isn't just a matter of individual anecdotes like Harry's. As discussed later, whole microworker subgroups and task types can have very different features. So it's easy to stumble by accurately describing one facet of the market, then simply assuming others are similar.

We wouldn't make sweeping generalizations about 1980s "telephone workers" based on just the experiences of administrative assistants, hotline psychics or commodities traders. But similar mistakes regarding today's microworkers can be tempting. **66** Research on the economics of crowdsourcing has been, so far, remarkably thin ... considering the growing size of the platform economy. — Michele Cantarella & Chiara Strozzi, Workers in the Crowd

So we began this Toronto Workforce Innovation Group project by gathering all the available relevant research.

We soon realized there simply aren't any studies on microwork in the GTA. This broadened our focus to the national level. And still, the basic fact is this: no one knows much. New research is bringing key points into clearer focus, though.

So this post reviews what combining all available sources can tell us about Canadian microwork. Along the way, it also highlights some key research findings (and challenges) about these new markets more generally.

## How many microworkers are there in Canada?

There's almost no direct, large-scale research about microwork in this country. This makes our most promising option the **Canadian Survey of Consumer Expectations**.

This Bank of Canada (BoC) questionnaire goes out quarterly to the heads of 2,000 households, selected to represent adults 18 and older in this country. For 2018, the surveys also included an **informal work supplement**. Like **recent** U.S. **efforts**, these extra questions focused on "gigs" or "side jobs" that otherwise don't register in traditional employment statistics.

The supplement covered pay for offline services, from house-painting to eldercare. But it also asked about online earnings. Options here included driving for services like Uber, creating content (e.g. YouTube videos), and "getting paid to complete tasks online through websites such as Amazon Mechanical Turk, Fiverr or similar sites."

This question makes the survey one of very few sources that specifically investigates Canadian microwork. And on average, 4% of respondents said they'd completed tasks online for money.

## Talking clearly about digital work

## If nationally representative, the Canadian Survey of Consumer Expectations responses suggest just over 1,195,000 people earned microwork income in 2018.

More details would obviously be necessary to make proper sense of that basic number. But complications set in even earlier.

People often don't understand themselves in the language of labour analysts. Pew found that by the end of 2015, e.g., 89% of U.S. adults still weren't familiar with the term "gig economy." And the intersection of informal and digital work is complex enough to trip up even specialists.

All this can make interpreting survey results challenging.

The U.S. Bureau of Labour Statistics sought information similar to the BoC survey with their 2017 Contingent Worker Supplement, for instance. But **many respondents clearly misunderstood questions** about digital platforms and "electronically mediated" work. Ultimately, Bureau employees had to manually check and recode responses.

The definition of microwork is also notoriously blurry, making this problem worse.

One basic challenge is that many different kinds of tasks can qualify. That's why the recent International Labour Organization (ILO) **report on microwork** uses a 10-category classification. But looser, less standardized classifications remain common.

A 2019 Boston Consulting Group **survey on the gig economy** shows the research challenges this can cause. Their report doesn't distinguish microwork from other "low-skill" platform-based services, such as house cleaning. So it ultimately can't tell us much about either type of work.

#### Small differences with big implications

Such blurring is also a risk for the BoC's microwork question.

Among informal income options, it lists "completing tasks online" separately from "responding to surveys." And BoC staff excluded the latter from their analysis of informal work.

But the ILO report just mentioned notes that 65% of microworkers earn income by taking surveys. This makes it the most common sort of work by a full 19% on platforms such as Amazon Mechanical Turk — also known as "AMT."

So what might including online survey-taking do to this estimate of Canadian microworkers? Based on the BoC publication, it's quite hard to know.

(Partly, that's because the question actually combines completing surveys on- and offline. So even full access to the response data wouldn't easily resolve things.)

But let's say 0.05% of respondents picked the survey-specific option to represent their digital work, while not selecting "completed tasks online." On average, this would take just one person per questionnaire they sent.

We might then increase our estimated population of Canadian microworkers by the same 0.05%. This would translate nationally into nearly 15,000 people — higher than the total 2016 census population of Fort Eerie, Ontario.

#### The Canadian Internet Use Survey

Such attempts to glean microwork insights from broader surveys also raise a more basic issue.

Even with many respondents, it can be hard to know they truly represent Canadians as a whole. For instance, the BoC survey's online-only format might well leave platform workers overrepresented.

On average, respondents each survey included in this analysis would have averaged 80 Canadian microworkers. But that number's far too small to support generalizations about the microworkforce of nearly 1.2 million the BoC survey answers imply. We certainly can't know anything about the socio-demographic details that matter most for TWIG's project.

The challenge of representativeness is even clearer in our only other direct source for national numbers on microwork: Statistics Canada's latest **Canadian Internet Use Survey** (CIUS).

The 2018 CIUS draws on responses from just over 14,400 people, secured by mail and phone. The survey had also just been updated for currency and clarity.

It directly asked participants if they'd earned money in the last year from "crowd-based microwork (e.g., Amazon Mechanical Turk, Cloudflower [*sic*])." The survey also clearly distinguished this option from earnings through "online freelancing (e.g., Upwork, Freelancer, Catalant, Proz, Fiverr)."

Despite including the question, Statistics Canada didn't release any data on microwork with the main CIUS results. And when asked, they explained the responses received didn't allow enough certainty for publication. Any conclusions would simply be too unreliable.

More recent publications suggest Statistics Canada may ultimately be able to provide far richer insights. (See the last sections of this post for more on that.) But right now, we simply have no reliable information about how many microworkers there are in Canada — let alone Toronto.

## How much does microwork pay?

Even without knowing their exact number, we hoped estimating Canadian microworkers' earnings from international sources might still be possible. But this also quickly gets murky.

It's occasionally simpler to treat using some platform as synonymous with doing a specific sort of task. But some platforms offering microwork also let people take on larger, higher-skill "macrowork" projects. And this opens up room for error.

The BoC's informal work survey reflects the challenges here. As examples of sites respondents might use to "complete tasks online," it offers both AMT and Fiverr. But the second is a far more general freelance marketplace. Work on offer there ranges from place-based street postering to mobile app development.

## Workers on AMT might earn a cent per basic image-recognition task. But Fiverr's highest-paid projects include complex video production, for up to \$18,000 USD.

For those interested specifically in microwork, things then get even more ambiguous.

The survey's definition of "tasks online" goes far beyond simple work like rating pictures. Examples provided include reviewing resumés, editing documents and doing graphic design. The questionnaire then gives both freelance computer programming and graphic/web design as entirely separate income options. Respondents could also select multiple options.

This isn't just academic quibbling. It's unclear how Canadian microworkers would interpret these options, and the result could be significant miscounting. Then this likewise undermines hope for any further insight from the survey responses, on topics such as average microworker payment.

#### Microworkers of the world

Such concerns make the 2018 International Labour Organization report mentioned earlier invaluable. Digital labour platforms and the future of work focuses specifically on microworkers. So it paints a much richer picture of how and why people around the world use these platforms.

The study draws on several rounds of surveys and interviews. Researchers collected data from an international group of 2350 microworkers, reached through five leading platforms. These included AMT, CrowdFlower and **Prolific**. (This last specializes in recruiting participants for higher-paying research surveys and experiments.) The authors then used this data to study more general features of platform microwork and microworkers.

Throughout, they focus on exactly the sort of compensation and demographic details relevant to TWIG's work.

Even factoring in the exchange rate, this obviously falls well below Ontario's minimum wage.

The report unfortunately doesn't provide any Canada-specific analysis. Respondents nevertheless included Canadian microworkers. And their earnings presumably inform the authors' broader conclusion that North Americans using these platforms make an average of \$4.70 USD per hour.

But as with the BoC results earlier, survey representativeness matters. In total, the ILO study only actually draws on responses from 41 Canadian microworkers. And no more than 13 come from any given platform.

That said, the ILO's North American average seems likely closer for Canada than Mexico. Socioeconomic and other disparities are certainly potentially greater there. But the report also includes only 13 Mexican microworkers, from among the country's 129m citizens.

#### The variation behind averages

Arriving at that \$4.70 North American average required the authors make various choices about expressing and prioritizing underlying complexities. And they're very transparent about this.

Beyond the hours microworkers devote to directly completing tasks, e.g., most spend considerable unpaid time on platforms looking for work. So the \$4.70 compensation average very reasonably factors in that extra time.

But when we look at a blended hourly payment figure like this, it's easy to forget one of crowdwork's defining features: flexibility. This is particularly extreme in microwork, which leads to huge variation in how and why people do it.

Such short, purely digital tasks *can* certainly be completed in the eight-hour blocks of a traditional work day. But other workers just occasionally use them fill commercial breaks at home. Some ILO respondents even report microworking exclusively while at other jobs.

Such variation is a major theme of Mary L. Gray and Siddharth Suri's recent book, Ghost Work.

In traditional jobs, most colleagues have relatively similar hours. Gray and Suri argue that microworkers look more like a "power law" distribution. Essentially, relatively few do most of the work.

**66** 20 per cent of [microworkers] doing 80 per cent of the work guarantee that the work gets done, and the remaining 80 per cent of workers doing 20 per cent of the work fill in the gaps.

– Mary L. Gray and Siddharth Suri, Ghost Work

Similar patterns repeated across all the platforms studied. On that basis, they divide microworkers into three groups: the "experimentalists, regulars, and always-on." The key difference is time devoted to microtasking — which usually increases with financial dependence on platform income.

"Always-on" and "experimentalist" microworkers often engaged in quite different work, as we'll discuss later. But it's also worth noting that there can certainly still be overlap at the level of particular tasks they undertake. Especially since many of us share a basic intuition that workers handling the same job will tend to resemble one another. Which just adds further opportunity for confusion about microwork.

The ILO report highlights another long-tail distribution, this time in hourly compensation. Accounting for unpaid work, e.g., the median hourly pay across all their respondents is \$2.16 USD. But a tiny minority make almost \$20 per hour.

In part, this reflects differences between platforms themselves. The researchers found that labour on Microworkers paid a median hourly wage of \$1.01, including unpaid time; Prolific, however, pays \$3.56.

National differences in "borderless" work

Such variations often reflect a key factor: where the workers live. National context turns out to be crucial in not only earning patterns but many other aspects of microwork.

Amazon's policies, e.g., long discouraged workers outside the U.S. or India from using AMT. And platform demographics today still reflect this history.

So on matters from worker compensation to family makeup, the ILO researchers report separately for each country. The decision to effectively present AMT as two separate platforms highlights the importance of distinctively national trends.

The ILO report describes AMT as a clearly "dual-banded" labour market, for instance. Experienced Americans focus on pursuing tasks that pay at or above their federal minimum wage. This leaves lower-paid tasks to inexperienced or foreign workers.

**66** The majority of the crowdworkers stated that they were satisfied or very satisfied with crowdwork...Overall, only 6 per cent were dissatisfied and 1 per cent very dissatisfied.

— International Labour Office, Digital labour platforms and the future of work

Such aggregate statistics also conceal broad variation, of course. And this is particularly clear in national-level comparisons released since the ILO report.

The country-to-country comparisons

Lisa Posch and her collaborators, for example, have begun publishing results from a recent survey of almost 12,000 Figure Eight microworkers. And they've used the data to compare workers on the platform by country.

This reveals significant differences in motivation. But they've also measured international demographic variations. These range from the fact U.S. workers on the platform have incomes higher than the national average to Russia's seemingly older-than-average micro-workforce.

Then even more significantly, the EU's Collaborative Economy project has released several pieces of analysis relevant to microwork since 2018.

Based on their extensive COLLEEM survey, these findings draw on data from 32,409 platform workers. This allows **direct comparison of the digital gig economies in 14 European countries**. Each is essentially represented by as many respondents as the entire ILO microwork survey, whose respondents span 50 countries.

COLLEEM's added power and comparative approach produce several findings useful as context when considering Canadian microwork.

Maybe most significantly, **researchers find clear variation in the amount of microwork the countries' residents undertake**. Levels differ by over 20%. This also isn't straightforwardly a matter of national income or education levels. Microwork is highest in France and the lowest in Germany, with Slovakia sitting roughly in the middle.

Further study may uncover reliable patterns here. And that could allow reasonable inferences about Canadian microwork levels — or even those of the GTA itself — without direct measurement. But in the meantime, such relatively wide variation reinforces reservations about assuming simple patterns recur internationally. New modes of microwork

Finally, it's worth noting that some key recent developments seem underrepresented or totally absent from the studies discussed above.

Al-related tasks have long helped drive demand for microwork, for instance, and the field continues expanding. But only 8.2% of the ILO study's respondents worked on such tasks. Then just 7.9% indicated work on content moderation, a field already estimated in 2017 to be employing 150,000 people.

This seems to reflect the ongoing shifts that can make these markets so difficult to track. New microwork is happening, just not on more familiar (and easily studied) open platforms like AMT.

Sources such as *Ghost Work* emphasize the variety of these alternative arrangements. Early examples here include internal corporate microtask platforms, such as **Microsoft's Universal Human Relevance System** or **Google's EWOQ/Raterhub**. Companies now often also outsource development or staffing of such services to third-party "vendor management systems."

This makes microwork still harder to track — even as it's potentially more present in North America. Long used by companies here to offshore operations, for example, India's iMerit recently opened its own New Orleans office.

Such developments tie into the emergence of more specialized microwork services. These use tailor-made tools and handpicked crowds to meet the increasing demand for more accurate, confidential work. Florian Schmidt documents exactly this sort of a shift in **the auto industry's increasing engagement of companies such as Mighty AI, Hive.ai and Scale.ai**.

**66** 30 million Chinese crowd workers [serve] more than 190,000 enterprises and individuals worldwide. This generates a total business turnover of CNY 5 billion (approx. \$900M USD).

- Yihong Wang et al, Crowdsourcing in China

There's also a large and growing ecosystem of microwork platforms/providers operating in languages besides English. Often serving non-western requesters, these largely fall totally outside the literature discussed so far.

China's massive market offers particularly striking examples. Microwork options there range from task distribution over chat services to emerging "crowdfarms" and specialized datalabelling services.

It seems unlikely Canadians are currently microworking for such services in significant numbers — at least at the national level. But this could change if the global microwork market keeps growing. Such emerging businesses might then provide increasing numbers of Canadians with income. And that's particularly true of diverse, multilingual cities like Toronto.

## **Promising research directions**

Reviewing the sources above obviously still left us with many open questions. It nevertheless helped us more clearly identify key sources of uncertainty. And the process has already pointed us towards promising possibilities for future insights into Canadian microwork.

One key avenue here is the richer data increasingly available about the broader Canadian gig economy.

We originally hoped research on the topic might provide indirect insight into microwork. But there was virtually no scholarly research specifically on gig work in Canada. In fact, a systematic literature review ending in mid-2017 found nothing peer-reviewed on the subject.

The Canadian Centre for Policy Alternatives has actually studied **the GTA gig economy**. But their research focuses exclusively on in-person service delivery. This leaves little to work with for anyone specifically interested in microtasking.

Statistics Canada surveys the gig economy

Since then, the topic has thankfully benefited from greater research interest.

In particular, Statistics Canada recently published "Measuring the Gig Economy in Canada Using Administrative Data." This groundbreaking study is a major contribution to increasingly widespread attempts at quantifying national gig economies.

(The OECD has published a helpful summary, for those curious about work in other countries.)

The research draws on a random sample of linked 2016 tax filing and census data, covering just over 4,780,000 individual citizens. This approach allows remarkably rich detail and accuracy. It also lets researchers explore demographic, compensation and other employment questions particularly relevant for labour force planners.

This new paper remains preliminary. But it charts the broad patterns of independent work in Canada, laying the groundwork for future studies.

## Statistics Canada concludes that gig workers made up over 8.2% of all working adults in 2016 — more than 1,674,000 Canadians.

The authors first establish a definition of "gig workers" in the Canadian context. This extends far beyond those making their living with new technologies, to the sort of musicians and actors who coined the term. It also includes all other "unincorporated self-employed freelancers, day labourers, or on-demand platform workers."

The authors then go on to provide a wide range of fundamental details about this broad gigworker population, including their income and age distributions. They also sometimes dive deeper, with observations like the fact recent male immigrants work gigs almost twice as often as men born in this country. How geographically concentrated are Canadian microworkers?

The paper doesn't explicitly address microwork, however. And there's no clear way to make reliable specific inferences from its broader gig analysis.

Consider the basic question of location. Statistics Canada's analysis shows that the country's gig workers are clustered in metro centres such as Montreal, Toronto and Vancouver. So can we safely assume microworkers are similarly concentrated?

Other sources suggest not.

The intuitive parallel doesn't square, for instance, with work by the JPMorgan Chase Institute (JPMCI). Their team has access to anonymized data from 39 million bank accounts. This allows economic studies without the survey pitfalls already discussed. And they've used this very detailed, accurate personal data to produce a range of influential research on the U.S. gig economy.

Like the Statistics Canada paper, for instance, a 2019 JPMCI report found that platform economy participation varied widely between cities. But it also takes a closer historical look at gig work by type, across 27 U.S. urban centres. This shows that **transport roles such as driving or delivery overwhelmingly explain differences in cities' number of gig workers**. And as such work increases, they likewise see no evidence people take up other kinds of gigs.

More generally, microwork would fall under the "non-transport platform labour" tracked in JPMCI's analyses. And they likewise report that earnings for this category are extremely consistent across the 23 states tracked, both big and small.

Gray and Suri's research provides a further reason for caution about clustering. The American microworkers they studied for *Ghost Work* are "distributed throughout the United States in both highly and sparsely populated regions."

This geographic issue is obviously in itself a narrow point. But it hopefully illustrates why even high-quality findings of the broader gig economy might not translate directly to microwork.

### Labelling microwork

The recent Statistics Canada gig paper still offers at least one valuable perspective on microwork. By solidly counting gig workers nationally, it provides added context that can help interpret research such as the BoC's informal work survey.

This begins with the breakdown in "Measuring the Gig Economy" of how many gig workers are active in each of Canada's economic sectors. But these proportional numbers alone can't tell us anything directly about microwork.

That's primarily because they're extremely broad. To define work sectors, the authors use categories equivalent to the first two digits of the North American Industry Classification System (NAICS) codes for Canada. Sector 51, for instance, covers "information and cultural industries." This includes businesses from book and newspaper publishing to film and much of tech.

It's theoretically possible to identify narrower industries and sub-industries through longer NAICS codes. But even at the 5- and 6- digit levels, there's nothing yet that specifically captures microwork.

#### Testing microwork estimates against gig data

But we might still use such data to estimate an upper limit on Canadian microworkers. Let's assume that they made up *every* gig worker in both NAICS sectors (#51 & #54) that include the codes used by major microwork platforms themselves. Then let's include the entire further sector (#56) covering outsourced administrative and clerical tasks.

Based on the Statistics Canada analysis, these three hired a combined total of just under 549,000 gig workers in 2016. Which therefore seems like a more than reasonable upper limit for Canadian microworkers. Many admittedly might not declare platform earnings, especially if making relatively little. And this could mean they wouldn't register in the count since the researchers depend partly on CRA filing for their data.

But simply adding sector gig worker totals together also entails significant overcounting, which should offset concerns on that front. Each sector covers many areas, the majority far removed from microwork. NAICS 56, for instance, includes all janitorial services.

Some people also work gigs in multiple sectors. The Statistics Canada authors count these individuals under the percentage of workers active for each sector. That's why cross-sector totals add up to more than 100%. And it means the proposed ceiling certainly double- or even triple-counts some gig workers.

All that makes 549,000 seem a reasonable high-end estimate for Canadian microworkers. But even this ballpark estimate from administrative data sharply contrasts with implications of the BoC informal work survey. Extrapolating from those responses, we end up with a projected 1,195,000 Canadian microworkers.

I won't speculate further here on how best to explain or reconcile the difference. But these are certainly the sorts of questions we hope new research will soon clarify.

There are 35 works cited in this literature review. The selected citations are available at the end of **the online chapter** on **microtasking.ca**.



## Aggregate action, complexity, and microwork

All people have the potential within themselves to create a positive impact. Tiny, minuscule positive actions can create something large and beautiful. No person or moment needs to be wasted when it can be put into service. We can do anything, so let's do something good!

Because every little bit counts.

This article was written by **Ana Matic**, a member of the microtasking research team. It draws on her OCADU MDes thesis, *Microwork: Theory, Models and Mechanics for enabling impact through aggregate action.* Ana also presented on this topic at the December 2019 microwork session. Ana works at the intersection of design thinking, systems thinking and foresight practices within complex challenges.

## The aggregate action manifesto

Aggregate action, in the form of microwork, has the potential to engage an unprecedented number of people to tackle complex global problems.

**56** The rates and volumes of change have been increasing – in technology, economics, and experience – heralding global challenges rooted in interconnected complexity. The predictability of our world has thus decreased, also causing potential solutions to become complex; at times yielding further challenges, and unexpected outcomes. – Nassim Nicholas Taleb, Antifragile. Things That Gain From Disorder

## The microwork revolution

**66** The microwork model facilitates action. Tiny, approachable actions are undertaken and pieced together to form an impactful aggregate. – Leila Janah, **Samasource** founder

Recommended: Samasource founder, Leila Janah describes the microwork revolution in her Ted Talk.

## Wangari Maathai's story

Aggregate action projects engage a large number of workers to perform a high volume of significant tasks. Wangari Maathai and the Green Belt Movement is an inspiring story.

Wangari Maathai was born in 1940 in a village lush with farms, animals and rivers. By the time Wangari returned from a PhD abroad, Kenya had developed deep environmental challenges resulting in arid desert climates—a complex problem requiring a speedy solution.

According to Wangari, soil erosion and tree cutting triggered these changes. She could see how a decrease in usable farmland might cause greater disputes over resources while creating further social problems.

So, Wangari decided to plant trees and reverse soil erosion. Then, she organized a women-led movement to do it. At first, the movement lacked momentum. Yet the need for ecological change and shortage of outside help increased the volume of participants and trees planted.

Community participation and education happened because of autonomous planting groups. So the movement increased social cohesion with women while restoring ecological systems over time. It has also created other social impacts. Women gained an education, additional agency while increasing their autonomy and socio-economic standing.

As a result, 30,000 women planted over 30 million trees, and the environment became a lush, green setting. This enabled Wangari Maathai to enter Parliament and be the first African woman to win the **Nobel Peace Prize**.

The lasting impacts of aggregate action



## Aggregate action in the digital sphere

**66** You've heard of software-as-a-service. Well, this is human-as-a-service. –Jeff Bezos, CEO and President, Amazon

Samasource, for example, learned that aggregate analogue actions can happen in the digital sphere. Samasource creates microwork projects for low-income workers in developing countries. They offer fair remuneration while enabling societal impact. The Harvard Business School Case Study states that "Samasource sought to use work, not aid, for economic development" (Reference: Gino, Francesca, and Bradley R. Staats. "Samasource: Give Work, Not Aid." Harvard Business School Case 912-011, December 2011. Revised June 2012.)

The Samasource model is to take on data-driven projects of their tech clients, such as Google, eBay, Microsoft and others. Then, they process these data tasks into microtasks and create a distributed microwork force.



**66** The social impacts that occur due to this mechanism are important. Individual workers gain training and personal wealth that can significantly alter their lives and the lives of their families. As each person is able to improve their own situation, they can collectively affect their social environment in a positive way by raising skills, knowledge and standards of living. – Leila Janah, Founder, Samasource

## **Elements of gamification**

Gamification mechanics have the potential to enable furthered play, and provide additional task meaning to microworkers and clients.

What happens when we make it fun?



66 Most microwork platforms focus on simple task execution and lack elements of fun, such as levels, points, or badges. Gaming Dynamics can create tasks that engender 'fun play' and quantified achievements and awards. Human emotions and needs can create and incite microworker action, enable task completion, and mechanize return activity.

- Experiments on Motivational Feedback for Crowdsourced Workers

## The Foldit example

A salient example of these mechanisms in real-world, applied aggregate projects can be noted in FoldIt (beta). FoldIt is a gamified microwork puzzle game platform. It offers hundreds of protein matching puzzles for players to solve on a volunteer basis.

FoldIt was originally created by the University of Washington's Centre for Game Science's collaboration with the Department of Biochemistry. It has successfully engaged thousands of users to contribute to solving over 1300 protein puzzles and continues to expand its research of available games.

The example that is shown below features an AIDS-related enzyme research project. A portion of this project was solved via the FoldIt platform. Yet it had eluded researchers for over a decade.

Foldit protein alignment tool



## Games, meaning and the behaviour economy

Finally, the last decade has heralded a disruptive change in the ways people engage with organizations, services, things, and each other. We're moving toward the paradigm of the behaviour economy, a departure from commodified purchasing, towards seeking increased meaning and engagement with services that allow us to behave in memorable ways, and to participate in the community.

Thus, the potentiality of community-driven, participatory, and meaning-based impact is of interest. Especially within aggregate, user-engaging microwork approaches, and their potential impacts in areas of change.

## Microwork 2.0

Therefore, what might Microwork 2.0 look like, in aggregate, gamified, impactful ways? And what might it do for us individually, and collectively?

**66** The economic model promoted by the behaviour economy is a model where behaviour is the main goal of our actions, and where intrinsic motivation is the key to participation, engagement, and the satisfaction of multiple dimensions of value.

– Carl Hastrich, Five-Point Leaders Leading Innovation in the Behavior Economy



# Microwork futures: Strategic perspectives

Strategic perspectives are ways to think about the future. They are the final output of the foresight method used for this project. The project surfaced five areas to consider: artificial intelligence, education and training, livelihoods and wellbeing, and platforms.

66 We need to find within technology that there is something we can do which is capable of taking care of everybody and demonstrate that this is so. That's what geodesic domes are about and that's what my whole life has been about.

– Buckminster Fuller, 1981

Strategic perspectives on microwork are ways to think about the future. We have designed them as prompts for program designers, policymakers, and other stakeholders to think about in the context of a ten-year planning timeframe to 2030.

How did we arrive at the strategic perspectives? Have a look at the project's research timeline

# Five strategic perspectives on microwork

**Artificial intelligence** is part of everyday life. Although most people question issues around privacy and automation, we consume it readily and contribute to machine learning willingly.

**Education** is increasingly an online experience. As jobs move online, education from K-12 through to post-secondary is changing before our eyes.

Livelihoods and wellbeing are issues that most people voice when considering the impacts of non-standard work. They worry about income precarity and the potential for exploitation.

**Microwork** is a part of the sharing economy. Everyday objects such as "Siri" and services such as Uber depend on microtaskers. And outsourcing microwork in the supply chain drives the cost of goods and the level of profits earned.

**The platform economy** creates opportunities for organizing large groups. While at the same time, it makes it possible to digitalize most everything into small tasks. These two things taken together are a potent combination.

## 1. Artificial intelligence

Developers can build an artificial intelligence (AI) code of ethics into algorithms and code. But one might ask, "Who gets to define ethics and enforce it? Also, how is it accountable?"

Currently, Al is part of many consumers' lives. Over time, the technology lifecycle depicts adoption as a bell curve, a theory developed by Evertt Rogers in his book *Diffusion of Innovations*. As the early and late majority join, adoption speeds up. At the height of the curve, there is a dramatic change. Given the symbiotic relationship between microwork and Al, one might consider the current state of Al adoption. A recent McKinsey Global Survey included a range of capabilities that enable Al to solve business problems.

66 Adoption of artificial intelligence (AI) continues to increase, and the technology is generating returns. The findings of the latest McKinsey Global Survey on the subject show a nearly 25 percent year-over-year increase in the use of AI in standard business processes, with a sizable jump from the past year in companies using AI across multiple areas of their business. A majority of executives whose companies have adopted AI report that it has provided an uptick in revenue in the business areas where it is used, and 44 percent say AI has reduced costs.

– McKinsey Global Survey, November 2019

When people don't add value

#### So, we've already normalized the idea that people don't add value in some situations.

An example of this is the popularity of self check-out lanes in grocery stores. Many people want a quick and non-judgemental experience, so anonymity is more important than human contact with a cashier or service representative.

Online shopping is an extension of a preference for humanless contact in some situations. In scenario 1, **Persona**, **Alyx Lee**, is a reactor manager making his way home on an almost empty train. They're happy to engage in a humanless transaction; however, if there's a person at the end of the cycle ride, they might find that a bonus too.



When a StockX alert pings, Alyx indulges: they grab some slick black Onitsukas. Crunch-rate hours getting those reactors set up last month more than cover the shoes. Plus the site flagged this nearly new pair just a 20-minute cycle from home. So it doesn't even mean a carbon and waste hit.

Marketers are continuously introducing new levels of personalization to their offerings because there is also a demand for human contact. Microworkers (still) have the edge on AI when it comes to person-to person-interaction. They are currently a primary conduit for the experience economy's standards of value. A microworker's befriending vibe adds to the experience. Can AI replace this?

In an Al-enhanced market, hand-crafted goods and personally delivered services might become highly valued. Supply chain innovation might support small-batch production. Microworkers could enable the distribution system for bespoke products and services.

### Machine learning means that AI trains itself

However, microtaskers create machine learning data, and Al systems are constantly identifying patterns and learning how to make decisions without human intervention. Successful machine learning means that microwork, as it exists today, might change or disappear altogether, replaced by something that's presently unknowable.

The utopian view is that as automation's last-mile AI would take on repeatable tasks and therefore, free humans from meaningless work. In this version of the future (beyond the scope of our work), time might no longer be constrained by work and salaries. In the current planning window of ten years, will it mean that people have more time to connect with their family, friends, and community?

So our humanistic questions might include: "When Al does jobs, where do people find their purpose? What makes a purposeful life beyond work"?

A different society might be developing

**66** The original question, "Can machines think?" I believe to be too meaningless to deserve discussion. Nevertheless, I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted.

- Alan Turing, Computing Machinery and Intelligence, 1950.

## 2. Education

September 2020 – It's 8:00 am on a Monday and school is open. The schools operating hours sync up with business hours – Monday to Friday, 8:00 am to 6:00 pm.

September 2030 – The concept of 9-to-5 was not present in any of the project scenarios.

According to Statistics Canada, gig workers rose from 5.5% to 8.2% from 2005 to 2016. Meanwhile, worldwide demand for gig work (as tracked by the Online Labour Index) is increasing year over year. When you add other forms of non-standard employment, you have a growing number of adults who are *not* working "regular" hours. So the growth in non-standard employment calls into question K-12 hours – and a 12-month school year. The people who set school hours have employment agreements that look nothing like the work arrangements many of these children might have in 2030. Are they working in service to the future? Changes in the next 10 years might impact the economics of K-12 and post-secondary education.

Beyond K-12, the value of knowledge generation and research could grow in the digital economy. Since information is widely accessible to all, education might extend to shared knowledge creation. If this were the case, there would be an opportunity for democratic and accessible knowledge mobilization.

Currently, academics focus on knowledge generation and contributions to research methods. However, digital access and education technology might transform the focus of the education system. In the higher education sector, there might be an emphasis on connecting knowledge and methodology to real-world situations. So, knowledge and its ability to inform action would gain importance.

## Closing skill and knowledge gaps

Micro-learning might be an emerging learning strategy, aimed at closing the skill and knowledge gaps. An example is Edubits. Otago Polytechnic, New Zealand is Edubits' original developer. In Canada, it's represented by the Humber Institute of Technology and Advanced Learning.

**Edubits** is a micro-upskilling platform for individuals and business. Credible micro-credentials are likely to disrupt the institutionalized approach to credential recognition. Micro-upskilling would align with the multiple (micro)career lives of future generations.

Task-specific education integrated into platforms could improve labour market access for socially marginalized populations.

Lower personal investment in education and credentialing might reduce barriers to career shifts. It could also retire the notion of a career ladder and align personal interests more closely to work life.

Persona Dan Yoon is a microwork coordinator who draws on his love of gaming to find satisfaction in his work.



Dan always imagined himself making it big in e-sports. When he visited home and hung out with his cousins, e-sports were a pastime. Although this work was almost as good because it required agility, thinking, quick responses, communication, and making the right calls.

### Supply chain integration

By trading in education, corporations would have more control over workforce development. So another question might be, "What happens when education is delivered via micro-training?"

It could lead to a dramatic expansion in who delivers micro-training. Consequently, legacy institutions might go shoulder-to-shoulder with for-profits, not-for-profits, and government. Education philanthropists, who traditionally support bricks-and-mortar institutions would have to reconsider their investment portfolios.

The social impact franchise (scenario 3) introduces an end-to-end adult education model into a microwork future that's heavily supported by impact investors.



SamaKar also runs KarmaSchool KarmaHub. It is a social impact microwork platform. Samakar moves people out of poverty through digital work and recognizes the inevitability of the emerging gig economy.

The government's role in education

Disruptions in education might impact standards and accreditation and the role of government and independent standards bodies. Policymakers would need to work with a wide range of education stakeholders to determine what is valuable and necessary.

Privately directed and digitally delivered education can be monitored. A shift to platform-based micro-learning heightens issues related to individual privacy protection. What happens when (free) courses are monetized through personal data access rather than public funding and philanthropy questions? Who controls what information?

Microwork (indeed, the shared economy writ large) is an indication that innovation and enterprise are moving faster than public policy. There's a narrow window of opportunity to work out concepts of rights and what's fair before innovations take hold and are systematized.

Profitably Public (Scenario 2) contemplates a proactive government that innovates on privacy.



Governments have unified management of citizens' medical, tax and demographic data. This aims beyond internal efficiency gains. Easy access to data has increasingly become a public service. Microworkers can request verification by API of their identity or police records, for instance.

Education requires regulatory oversight. So one might ask, "How far can the government go in setting regulations? Corporations understand their immediate and near-term needs. So they aren't likely to load up their future workforce with useless skills. But scams or incompetent actors are also likely. Therefore the government might need to step in to monitor or ban some types of training.

However, socialization, civics, networks and community are important benefits of education. We might have to find new ways to establish our systems for connectivity and belonging.

Corporate Cooperativism (scenario 4) anticipates social changes that affect education futures.



The policy environment is complex because balancing long-term policies threatens livelihoods.

Then, self-reliance and a "train yourself" ethos prevail. Social edifices, such as privacy, are traded for content and labour networks access.

## 3. Livelihoods and well-being

The emergence of a powerful new microworker identity might prompt realignments of geopolitical allegiances. In turn, it could disrupt economic norms.

## Platform work in Canada

Platform work crosses time, place and culture. In Canada, it offers the **opportunity to live in cities** with an affordable rental market and lower housing prices. Although rural and remote areas might continue to face problems related to high-speed internet access.

Currently, microwork's invisibility in Canada doesn't contribute to econometric measures such as calculation of the employment rates. Being seen in the economic and statistical analysis might mean that microwork is taken into consideration in policy formation and regulatory decisions.

A centralized registry for microwork participation might be a way to provide the transparency required for taxation and policy formulation. From this, evaluative instruments could be implemented to monitor levels of engagement in economic activity.

## Microworker mobilization

A Corporate Cooperativism future includes the concept of a microwork registry.



Meanwhile, a centralized registry for microworkers is introduced. This also enables tracking of employment history and job-satisfaction rates. An outcome is mediated response in the growth of monopolies. In parallel, efforts are underway to improve socio-economic analysis tools.

Basic regulatory standards such as

guarantees of a minimum wage for microworkers are possible. Although authoritative data on microwork compensation is required to make this happen, the availability of data would make it impossible to ignore workforce changes.

Presently, a primary concern for microworkers is their quality of life. Ensuring the wellbeing of microworkers and others engaged in non-standard employment would require new social instruments and different forms of service delivery. For example, the **portable benefits model** associates health benefits with the individual rather than the employer. So this makes a lot of sense in the context of microwork and non-standard employment.

However, Al's omnipresence is concerning for many people. The introduction of Al into daily life reopens the conversation about a **basic income** guarantee. But this is the stuff of systems transformation. And that's hard. It would be necessary to unlearn concepts of work and leisure and redefine success.

Persona Vasil Ramadani contemplates the mindset of a Generation Z in 2030.



Vasil's MBA and background in IT helped him go from working with code to making a difference. Working in SamaKar's Montreal R&D hub has shown him that hope isn't enough. Under these circumstances, practical and measurable efforts are key. Although he recognizes that the gig economy is here to stay, it doesn't have to be a precarious existence.

## 4. Microworking

In a microworking dystopia, exploitation of workers might happen on a global scale. However, microwork also creates possibilities for the common good, improved equity and access, and a redefinition of work and life. The potential for aggregate action is explored in **Purpose-driven Conglomerates**.



Al/M corporations have redefined their approach to the role of technology in their business models, and they recognize their impact on the world. As a result, GMX and other Al/M organizations are tackling some of the world's most pressing problems with global approaches that break down geopolitical boundaries.

## Ana Matic also discusses the concept in more detail in **Aggregate action, complexity, and** *microwork*.

Common knowledge about microwork might change the way people interact with and think about technology. Consumers, aware of the role of microworkers, would be in a position to place value on the microworker in the context of Al and robotic automation services.

As an example, the person-to-person support accessed through online chat is a feature of all transactional websites. The more automated online activities become, the more important it may be to be able to chat 24/7 with a real person. Even more salient, the presence of people in the service continuum might reinforce a sense of control and human dominance.

When it comes to human capital, occupational categories matter. The **National Occupational Classification** is the national reference on occupations using a system known as NOC codes. Fitting microwork, microtasking, and other platform work into NOC might be impossible or a long game. But a shared vocabulary of categories is evolving and this might bring microwork into the mainstream. Public knowledge might soon include what kinds of microwork exist, what they are called, and what industries they are associated with.

For example, in this project, we recognized microwork as part of the sharing economy, which places it in the context of more visible services such as Uber and Airbnb. Although cars and real estate aren't involved, we acknowledge that the microworker "shares" their computer, internet, and workspace. According to the Canada Revenue Agency, a determining factor for a self-employed individual is an investment in tools, and responsibility for repair, replacement, and insurance.

**66** Self-employed individuals often supply the tools and equipment required for a contract. As a result, the ownership of tools and equipment by a worker is more commonly associated with a business relationship.

## – Canada Revenue Agency

With this relationship, the issue of universal high-speed access is a point of equity. Persona, **Robin Esposito** waits while her internet kicks into action.



The sun was coming up over the hills, and the dreaded wheel of death was still spinning on her screen. Soon, Amazon's community fund would improve her connection speed.

It was the only thing standing between her and a promotion.

At the top of the microworker category, "master-builder" microtasks might evolve. These would fulfil human pattern logic and sensemaking for creative projects. In addition to high levels of creativity, master-builder tasks would require human empathy and *posteriori* knowledge (based on experience).

## Micro-gaming

Micro-gamers are microworkers who work simply for fun. The gamification of microwork projects is increasing and some of the games are very engaging (if not addictive). Take, for example, the puzzle and logic games people play on their phones. They participate in these activities when they're waiting in line, on the bus, or listening to podcasts or music. At higher levels, the games are challenging to solve. Once you reach expert levels, the game issues pay credits.

What might happen if micro-gaming could save lives? **Purpose-driven Conglomerates** anticipates drone water-flights, directly targeting real-time forest fires, as a micro-gamer activity.



GMX [Global Microwork Exchange] will be showing full video-coverage of the Vancouver forest fire drone water-flights. The drones were manned by over 3,000 people globally, for over 1,400 hours. According to rumours, over 200 houses and several acres of land were saved. In gratitude, the California fire department will be presenting a plaque.

Currently, this project is part of a group of microwork initiatives offered to W/Ps [Workers/Players].

#### Food as an example

Food is a topic that yields ideas about aggregate action by micoworkers. Seemingly insurmountable food distribution issues could conceivably be broken down into microtasks on a platform. This might include optimizing for yield, localized distribution, and maximizing resources.

Also, the food industry might use microtasking to deliver a "no-waste" policy. Microworkers would be able to monitor the preference-trails of consumer information while adjusting food production and delivery.

Meanwhile, food-tech and clean-meat substitutes might be able to accommodate bespoke orders and specific customer needs. When they work with local producers, microworkers could monitor and connect specialized requirements for small batch production.

Knowledge could be offered in micro-bites. In the case of another Generation Z persona Alyx Lee, value is placed on the extrinsic and intrinsic rewards of sharing knowledge.



Then there's always remote bioreactor consults for hobbyists. But Alyx especially loves helping farmers near where their parents grew up. Development offset dollars cover remote tech repair, plus pest and seed license troubleshooting. Online voting if it were a microtask: carrot vs stick

What if voting was a form of microtask? Direct-democratic trends might arise. For example, instant referenda or deliberative participation on a targeted and local level.

Still, microwork might extend to other forms of democratic participation. *Black hat:* people paying to flood regulatory calls for submission with slanted requests. *White hat:* microwork-type arrangements, combined with the ability to target relevant populations.

Online voting-focused microwork might be a powerful tool for not-for-profits who want to pay for the digital equivalent of attending municipal hearings on zoning variance. The concept might address systemic inequities. A great example of this is the book **Neighbourhood Defenders**. It examines how local participatory land-use institutions amplify the power of entrenched interests and privileged homeowners. Optimistically, targeted inducement to participation could help produce positive social ends.

However, between elections, microwork could extend to awareness-raising. Imagine bite-sized bits of political lobbying, person-to-person issue activism, and public education. According to **Pettigrew and Tropp's "contact hypothesis"**, contact reduces prejudice. If the hypothesis holds true for online contact, then microwork jobs might also extend to awareness-raising.

## 5. The platform economy

We might see more activity related to democratic decision-making and an uptick in public opinion polling because microwork platforms could easily move into this space. Platforms are made to handle most election work. Therefore get-out-the-vote activities could also be used for permissible election advertising scrutinization.

The tasks that get carried out in the name of democracy extend to trolling. On the dark side, voter suppression could be coordinated and scaled through microwork platforms.

Systems design and collaborative architecture are the glue that combines dozen of unskilled people's efforts into something that was once the job of a skilled, individual, worker. Platforms allow an unlimited number of people to participate in a space that might have formerly been fringe. When it comes to movement building, an exponentially larger group holds collective sway over an issue.

Still, corporations have the edge when it comes to platform organizing. **Platform Cooperativism** is a profit-before-purpose scenario that considers individual platform organizing in the context of corporate monopolies.



Unfortunately, the platforms lack analytical tools and operational and financial transparency is moribund. This creates systemic frustration and occasional protests. But the collective objections to global mega-corporation monopolies lack focus. In fact, public protests are failing to change the trajectory of market monopolies.

## Platformization of training

Whether they are supporting inclusive democracy or growing vast troll farms, microwork platforms provide training support to users. Microwork's integrated learning potential makes it difficult to disentangle the learning tools from the skills they've been designed to teach. Therefore, the learner depends on the platform for acquiring a set of skills that might only be useful on the platform.

The line between instruction and design on a platform could keep blurring. The blur might be subtle, but the effects are significant. Systems design includes everything from training scalability to asset development. Intellectual property vs human capital could become hot-button labour market discussion topics.

The platform economy might lead to private companies specializing in training platforms, and therefore edge out colleges and universities from adult education. Furthermore, a borderless education environment challenges place-based training. The instructor is likely to be a machine, and the platform is digitized and scalable. All of which increases the investment potential for profit-driven models. So there are strong corporate motivations at work in a profit-driven scenario.

#### Collective approaches

Microwork collectives bring microworkers together in digital project spaces. On this platform, participants can share a digital comparison of notes and ideas with other microworkers. People can also request feedback. An organized microwork collective might offer entry-level work. However, challenging work is available for experienced members. The collectives might seek higher levels of complexity and creativity. Collective could advocate for changes such as advancement opportunities and rewards for high-quality deliverables. They can also sub out microwork.

The Social Impact Franchise (scenario 3) considers a future where social purpose organizations lead collective approaches despite a continued profit before purpose dominance in corporations and a lag in policy development.



SamaKarTO harnesses the realities of the gig and tech economy while offering a humane approach. It's a strong new advocate for fair working conditions, decent work, and poverty reduction.

## How the strategic perspectives were developed

TWIG hosted two microwork foresight workshops. The second workshop was held on January 7, 2020. The first part of the workshop was devoted to discussions about the implications for the workforce in 2030. Participants voted on the top 16 implications and selected eight as the most significant and most surprising. Participants then reconvened in their groups to set out strategic perspectives based on two implications per group.

The research team analyzed the workshop outputs and synthesize them into a set of strategic perspectives. First, we assembled the 42 discussion threads. Then we categorized the inputs and developed a final set of five strategic perspectives on microwork in the GTA. It is our hope that program developers, policymakers and other stakeholders might consider these perspectives in their work.



# Next: Investigating personal futures

I found the microwork workshops to be highly supportive of the participants' commitment to convey strategic perspectives to policymakers. After reflecting on the findings, I make a case for the next steps – a focus on the personal futures of microworkers. How might they see themselves in their futures? This article was written by **Maggie Greyson**, a member of the microtasking research team. It draws on her OCADU MDes thesis, *Making the Futures Present*. Maggie is a designer and futurist. Her mandate is to help people to get comfortable with uncertainty so that they play a meaningful part in the future.

When planning the microwork multi-session workshops, our team prioritized methods that drew a robust image of the future. We also sought strategic perspectives, that highlighted economic, social, and cultural impacts. Although microtasking was the intended focus of the inquiry, it resonated with peoples' experiences at work.

This got me thinking. How could we go deeper? Designers, policymakers, and stakeholders often have standard employment relationships. Could they be able to "walk a mile" in the shoes of people who have rejected standard employment by choice, or been excluded through systemic inequities?

## What's happened so far

For two microwork workshops, we carefully curated groups with people from diverse backgrounds. For example, each group included at least one person under 29 years old with gig economy experience. Yet authentic microworker perspectives are missing in the first phase of the microtasking project.

So our team acknowledges the potential to go deeper by investigating personal futures.

A highlight of the workshops is the Toronto 2030 scenarios. They depict the futures of services, infrastructure, and education as they relate to microwork, and the gig economy. Also, they depict the public and private interests of four people. Most importantly, the implications and strategic perspectives of the scenarios can provide direct resources. It's also influencing our direction and rate of change. As evidenced by the TWIG microtasking project outputs, the team achieved the rational aim of the workshop.

To do this well, the team developed workshops which included the experiential aim of prioritizing feelings of inclusion. Generating wisdom for the participants was also an important part of our workshops.

From the first point of contact to the last survey, we showed our participants just how much we value their contributions. All our microwork multi-session workshops crafted maximum participation and a diverse group of stakeholders.

We aimed to made everyone feel included.

Individual experiences and how they might affect their interactions were taken into consideration. As a result, participants felt connected to the workshop and 28 out of 45 participants responded to the final survey; their responses were overwhelmingly positive.

Participant's comments

Excellent session –wonderful facilitators, thoughtful framework and a great mix of stakeholders.

Interesting to learn more about microwork and an engaging process that made good use of time.

I found the experience to be very eye-opening and set the holistic view of microtasking.

Very positive and interesting.

I had such a good time attending both workshops. This is such a great initiative.

To accommodate diverse learning styles and expressions of ideas, we engaged participants on several sensory levels.

First, we designed activities for quiet reflection and sharing in pairs. Then, we got participants on their feet. Also, the workshop tools and sticky notes were colourful, and bright markers were used at each table. Colourful cards facilitated conversations and there were printed cards with expressive icons.

Meanwhile, some of the participants played with the toys, which introduced fidget tasks to simulate microtasks.

For the first workshop, each table contributed to the creation of scenarios and personas. For the second workshop, we printed large posters with bright pictures of the personas. Also, these posters included a few reminders of their personal context. All of the scenarios were brought to life with large colourful posters, which included graphic contextual images.

Most importantly, our foresight and participatory action research methods were well-received.

Thanks to the research methods, new insights have been put forward. The results, reports, and toolkits can help program designers, policymakers, and other stakeholders make sense of system-level futures. Especially the futures that will affect their work. But as one participant asked:

**66** This was great; what comes next?

- Workshop participant

## Personal futures and the expectations of tomorrow

The results of the September 2019 to January 2020 research and activities illuminate a gap. According to our recent findings, a technique that helps people consider the human experience of the future is needed.

Thinking long-term with the same level of detail as we have is challenging. As a result, we tend to assume that current events, looming forecasts about unemployment, and a lack of information will continue unabated. Our microtasking workshops also revealed an undercurrent of contemporary issues that bubble beneath the surface in everyday life.

Al, bioethics, virtual reality, privacy, and free will and determinism are seemingly out of control issues. Unchecked, this lack of control can manifest as dystopian views of one's own life in the future.

Through a broader horizon, and without the existence of current issues, the practice of foresight is an opportunity to think long-term.

However, we tend to run into stumbling blocks when we think long-term. Mental images become blurry. They don't have the same level of context or feeling as they do in the present. We are attracted to menacing, dramatic stories in the news and entertainment.

There are no facts about the future. Because it hasn't happened yet. So how will we ever make decisions? Anxiety is a barrier to reason. This anxiety impacts judgement about what people say they "will want" or "need". We also think we will be less intelligent in the future than we are in the present.

Our visions portray more black and white dichotomies; Margaret Mead identifies this as workplay and jobs-no jobs. This dichotomy is connected to tempocentric way of thinking that keeps us locked in the present. By judging events on the basis of contemporary standards we create a bias. This bias makes it impossible to support one's own preferred future.

However, we can overcome some of these tendencies. When researching microwork's contribution to the future of work, researchers can benefit from activities that help participants adjust their expectations of tomorrow.

**66** So a struggle is going on in this country. It has been going on now ever since the first hint of automation. (Automation) provoked our suspicions; it made us believe that we weren't going to create enough jobs or increase productivity. Yet, we are going to be able to do that to an unlimited degree. Our (real) problem is how we're going to devise a system where every individual's participation in society creates dignity and purpose. Our society must have a rationale for distributing the results of its high productivity. – Margaret Mead, Seminar on Manpower Policy and Program (Washington, D.C.: Department of Labor, January 1967).

## Personal futures as a next step

An ethnographic design-research technique can help individuals adapt to change. Often, people aren't given the opportunity to talk about their expectations of the future or challenge their assumptions.

Personal futures can add to our understanding of microwork while illuminating individual contributions to society.

Another crucial benefit is the illumination of peoples' perceptions of success based on their well being. Since individuals are the experts of their life, there's a place for understanding one's "whole self". Although it's not just about the activities serving the work. In fact, microworkers already live in a system that is shaping the future.

**Combining foresight and ethnography** puts the person at the centre of inquiry. Personal futures identify one's own assumptions about what they want. Yet this may be different than what you think "everyone" or "no one" wants.

In 2016, I completed an exploration into the needs of people. Through this exploration, I reframed personal stories in the context of complex futures. The technique that emerged is called **Making the Futures Present**. It combines the activities of ethnographic research, the principles of experiential futures, and prototyping methods.

According to my research, personal futures techniques help people envision a preferred future.

For participants, this future starts at someone's worldview and uses prototypes that fold back time. In the low-risk setting of a workshop, they can envision clearer images of the future.

With some authenticity, *Making Futures Present* provides a brave space where assumptions about the future can be explored. This experience helps people understand that some things will be consistent in the present reality. It also recognizes that there is a spectrum between preferable and undesirable futures.



#### Making Futures Present workshop posters, 2016

## Next steps

We were encouraged by the studies available and the research that is being done. Because the digitalisation of the economy is an important contribution to The City of Toronto's focus on inclusive economic development. Also, it's an important part of Statistics Canada's initiatives.

On-the-ground research conducted by TWIG and the Workforce Planning Ontario network is a significant contribution to all future of work-focused studies. For instance, gathering personal perspectives from people with non-standard employment is a common approach to microworker workshops. Personal futures techniques could trigger a placemaking approach to participatory action research.

People involved in non-standard employment are a larger group than one might think.

At the first microwork workshop, one of the participants asked: "who here has what we would consider traditional full-time employment?" Hand after hand went up, as surprise rippled through the room. At least 75% of the people in the room identified with non-standard employment!

Non-standard employment as **described by the ILO** includes "temporary employment; parttime and on-call work; temporary agency work and other multiparty employment relationships. It also includes disguised employment and dependent self-employment." It is the stock in trade of the gig economy and microwork platforms.

Statistics Canada released results from a **study measuring the gig economy in Canada** using tax data. The study found that from 2005 to 2016, the percentage of gig workers in Canada rose from 5.5% to 8.2%. For comparison's sake, the **ILO reports** that the worldwide demand for online gig work has increased by roughly 20% per year.

*Making Futures Present* is an example of a personal ethnographic futures technique. Because it can harvest qualitative data about non-standard employment, gig work, and platform-based microwork.

This technique uses an activity sequence, which helps individuals pre-adapt to the future. Its tools are the imagination and existing knowledge.

Then the participant describes their expectations; what is unlikely, and what if things were even better or worse than expected. Answers reveal bias-based on the sources of their assumptions. There are no value judgements placed on experience. When referring back to the experiential aim in the microtasking workshop design, evidence from participants' lives can help them have a realistic outlook on their decision making power.

Activities in personal futures add new human-centred dimensions to our assumptions about the future of work. When they engaging in an interactive workshop, a participant recognizes where they have agency. They also uncover where they have the skills to survive and thrive, and make decisions that align with their values. Most importantly, this technique highlights the values, goals, skills, and abilities that people treasure. Meanwhile, participants are learning exactly how they can hold their values into the future.

A personal futures workshop with individuals on the gig worker to microworker continuum offers insight, inspiration, and aspiration. However, the output also provides authentic but hidden perceptions that are vital if we are to design a system that gives everyone dignity and purpose.

## **Roundtables and workshops**

Thanks to the people who provided their time, experience, expertise, and insights to the microtasking project. In addition to the contributors listed below, we also acknowledge the many people involved in one-to-one consultations and the UTSC signals sprinters.

#### Roundtables

Anne Jamieson, Senior Manager, Toronto Enterprise Fund, United Way of Greater Toronto Biljana Zuvela, Manager, Research, Public Policy and Evaluation, United Way of Greater Toronto Han Tran, Director, Bridging Services, ACCES Employment Jen Flexman, Director, Partnerships and Access, Babylon Health (Board member, TWIG) Jesse Hirsh, President, Metaviews Media Management Jo-Anne Liburd, Communications Consultant (Chair, Board of Directors, TWIG) Kate Kudelka, Senior Project Officer, Futures of Income, Pay & Taxation, Canada Revenue Agency Mahjabeen Mamoon, Lead Res Susan Brown, Senior Policy Advisor, Economic Development and Culture, City of Toronto Tinashe Mafukidze, Executive Director, Toronto Workforce Innovation Group Wendy Cukier, Professor, Entrepreneurship and Strategy, Ted Rogers School of Management, Ryerson University

#### Workshops

Abdul Mawlawi, Researcher, North York Community House

Adriana Beemans, Director, Inclusive Local Economies Program, Metcalf Foundation

Alison Darcel

Ann Holmes, Principal Consultant, Ann Holmes & Associates

Azhda Mehrpoor, Researcher, North York Community House

Caralyn Quan, Researcher, North York Community House Darcy MacCallum, Director of Family & Wellness, The Neighbourhood Organization

Dhanak Ohri, Undergraduate Student, University of Toronto

Diane Dyson, Director, Research & Public Policy, The Neighbourhood Group

Eliana Trinaistic, Social Impact Manager, MCIS Language Solutions

Emile Baril, York University

Geordie McRuer, Founding Consultant, Bastet Strategy Gina Lihou, Youth Employment Advisor/Facilitator, St. Stephen's Community House

Graham Westwood, CEO, Smashblock

Han Phu, International Business Development Han Tran, Director, Bridging Services, ACCES Employment Jenn Chan, Consultant, North York Community House Jonguil Eyre, Consultant Jordann Thirgood, Senior Policy & Research Officer, City of Toronto Judy Doidge, Director, Partnerships, Social Capital Partners Julian Posada, PhD Student, University of Toronto Julie Witt, Integrated Learning Experience Coordinator, University of Toronto Scarborough Julyata Mekonnen, Community Access Coordinator, The Neighbourhood Group Kate Kudelka, Senior Project Office, Futures of Income, Pay & Taxation, Canada Revenue Agency Mahjabeen Mamoon, Lead Research Analyst, Toronto Workforce Innovation Group Mazher Jaffery, Consultant Michael Marville, Business Development & Strategic Relationships, Progress Career Planning Institute Michi Komori, Consultant Nisa Malli , Senior Policy Analyst, Brookfield Institute for Innovation + Entrepreneurship Peter Stoyko, Chief Social Scientist & Information Designer, Elanica Rosemary Richings, Rosemary Richings Content Creation & Strategy Rowena Power, Director, Online Services, ACESS Employment Saddaf Syed, Integrated Learning Experience Coordinator, University of Toronto Scarborough Stephanie Kwan, Innovation Analyst Stephanie Mohamed, Victoria Park Hub Sukanta Goswami Susan Brown, Senior Policy Advisor, Economic Development and Culture, City of Toronto Tinashe Mafukidze, Executive Director, Toronto Workforce Innovation Group Valeria Gallo Montero, Undergraduate Student, University of Toronto Yasmeen Awadh, Gig worker

#### Workshop Facilitators

Alastair Cheng Ana Matic Goran Matic Marco Campana Leads Cheryl May Maggie Greyson

# TWIG TORONTO WORKFORCE

# online

# microtasking.ca

This resource is a print version of the content on the website. Additional resources are available online.

Microtasking project toolkit

TWIG's microwork library



TORONTO WORKFORCE INNOVATION GROUP | MARCH 2020