MICROTASKING

MARCH 2020

TWIG | TORONTO WORKFORCE INNOVATION GROUP

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MICROTASKING

TORONTO WORKFORCE INNOVATION GROUP

Toronto Workforce InnovationGroup (TWIG) is Toronto's workforce planning board and a member of Workforce Planning Ontario. TWIG's primary activity is to conduct dynamic labour market research and monitor workforce developments. TWIG also engages employment stakeholders with mandates that include Toronto. By working together, we identify workforce needs, gaps and opportunities and disseminate information.

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TWIG acknowledges the participation of many GTA workforce stakeholders
community groups | colleges and universities | educators and trainers | employers | government | industry | labour | media | training institutes | special interest groups | standards bodies

Research Participants
Significant contributions were made by participants in the project's roundtables and workshops. They are acknowledged throughout.

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TWIG is part of Workforce Planning Ontario. The network of 26 planning boards is funded by the Ministry of Labour, Training and Skills Development. Each board is as individual as the community it serves. However, the network also works together to identify and plan for fast-growing sectors.

TWIG maintains a focus on the technology industry. In Toronto, new jobs are emerging through infotech and biotech advances. Full-time employment grew more slowly than the city average, adding 31,930 jobs (2.8%) from 2018 to 2019. Part-time employment added 14,980 jobs (4.0%). Trends point to a long-term increase in part-time employment in Toronto.

The number of people in standard full-time employment is also falling. So you might be familiar with gig-work and the sharing economy. Yet many people are unfamiliar with microwork. It is an outsourcing method that shifts jobs to many isolated tasks. A microworker takes on a variety of different HITs from many sources through an internet platform. Two of the leading microwork platforms are Figure Eight and Amazon Turk. They represent a marketplace where outsourcing clients post tasks for microworkers.

If you haven't heard of microwork, try bringing it up in conversation. You are likely to find that you know someone – or someone who knows someone – who does.

The number of people estimated to be microtasking in Toronto is still small, so they may not be a microworker. But they may well *post* tasks on one of the platforms. Canada's demand for microworkers is high and the workforce is global. In fact, according to the Online Labour Index (2016), Canada is in the top five countries for employers buying labour over the internet.

Indeed, corporations are breaking jobs into tasks to improve their bottom line. Yet, academics, political parties, the creative industry, and many others generate "human intelligence tasks" (aka HITS). The work includes complex surveys, digital recordings of experiences, and "predictions about political events."

Verifiable statistics are not available for Toronto, so TWIG used foresight for this study. Experts, designers, policymakers, and gig workers contributed to all phases of the research. Together, we identified the changes that are taking place in Toronto's workforce. Then we created four microwork futures and strategic perspectives to support planning.

The research topic went beyond microwork in Toronto. We offer this deep dive into microwork to anyone who is thinking about the future of work.

Cheryl May
Senior Researcher, Microtasking Project

March 2020

blogposts

MICROWORK:

FROM JOBS TO TASKS

Why look into microwork in Toronto? by Cheryl May

Five questions about microwork by Marco Campana

Microwork's popularity among students by U of T Student

Microwork as a quick fix to ease the cash crunch by Valeria Gallo Montero

TWIG's microwork reading list by Cheryl May

Kristy Milland: The state of microwork by Marco Campana

Inclusive economic development by the City of Toronto

Digital platform worker initiatives by Statistics Canada

Why look into microwork in Toronto?

> We surfaced some of today's issues and opportunities by applying foresight methodology to microwork. This report offers strategic perspectives for employers, planners, policymakers, and employment services providers.

This article was written by the project's senior researcher Cheryl May, a specialist in strategy, innovation design, and foresight.

It's crucial to keep an eye on technology

Amazon Canada is placing itself at the centre of Canada's tech industry. In 2018, Amazon opened a 113,000 square foot Tech Hub in Scotia Plaza. In September 2019, Amazon announced a Scarborough fulfilment centre – its 12th in Canada. These initiatives represent 5,000 full-time jobs in Toronto, Scarborough, Brampton, Mississauga, Milton, Caledon and Ottawa.

Amazon offers many traditional and stable full-time jobs. Toronto's Mayor, John Tory, expressed his support for the Tech Hub:

> Amazon's expansion of its Toronto Tech Hub underscores the incredible tech talent we have in our city, and jobs like these allow us to retain and attract high tech talent locally.
> – Amazon Canada, December 18, 2019

But can tech giants rewrite the rules of work?

Microwork platforms are scalable tech ventures that earn mega-profits. The revenues of the top corporations are larger than the GDP of many countries. Amazon is one of the top four largest companies in the world by market value. The others in order of size are Apple, Microsoft, Amazon, and Alphabet (Google). Last year, Amazon's net revenue was 232.9 billion USD, up from 177.9 billion USD in 2017.

There's no doubt that microwork is a growing field, dominated by mega-corporations like Amazon and Google. The World Bank report, The Global Opportunity in Online Outsourcing, provides an in-depth look at the state of online outsourcing worldwide.

> The microwork market is dominated by two firms, both of which follow open services platform business models: Amazon Mechanical Turk and CrowdFlower. Industry experts suggest that these firms currently have combined annual global gross services revenue of about $120 million; together, they form about 80 per cent of the microwork market.
> – The World Bank, June 1, 2015, page 3

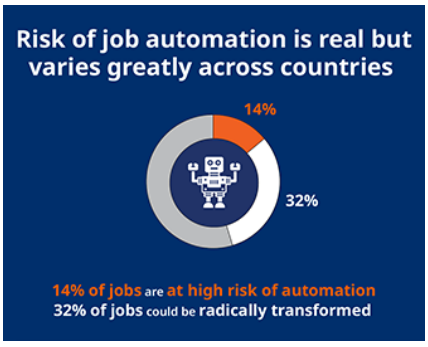
Is microwork part of the future of work?

Understanding the technology industry and technology jobs is critical for workforce planning. New jobs are emerging through infotech and biotech advances. New forms of work are the result of globalization and socio-economic change.

What TWIG considered in this project is the work that is enabled *by* technology platforms, called microwork. The report features points of view on microwork, essays and foresight findings. Finally, we arrived at five strategic perspectives, which are ways to think about the future. They are the final output of the foresight method used for this project.

The OECD's Employment Outlook 2019, considers the labour market and the future of work:

> The complex interplay of globalization, technological and demographic changes is generating many new opportunities but also challenges for many workers across the OECD. Identifying who is likely to benefit and who may lose out of these deep changes is essential to inform policies contributing to the development of a more inclusive labour market.
> – OECD, The Future of Work, 2019



OECD's infographic data based on data on Employment Outlook 2019.

Five questions about microwork

> As part of the research for this project, Marco Campana talked with Toronto-based employment service providers. When it comes to microwork, he found that they have more questions than answers.

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

What employment service providers are asking

Based on conversations with Toronto employment service providers, microwork is still a relatively unfamiliar form of work. Employment and other community-based agencies need to help job seekers navigate what appears to be an emerging labour market reality in Toronto. But it's a challenge.

And not surprisingly, we are finding more questions than answers as a result of this project. However, awareness is growing about this almost hidden, but growing segment of the gig economy. Indeed, all the signals collected for this project suggest that we should be paying close attention.

The labour market is changing, and service providers have the ongoing job of balancing both employer and client needs. Conversations generally reflected two main areas of concern:

- How can my agency prepare clients for microwork?
- Even if we may not agree with it, the reality is that we have to know to inform the clients and work with employers.

Five questions

Employment service providers are curious to know more about microtasking platforms. They also want to know whether the employers they work with are using or will use microtasking in their supply chain. Here are the five main questions and a breakdown of the subset of questions related to each one.

Q1: Is microwork that big a deal?

It's hard to know how big microwork is, or is going to be in the city.

So, how much should human service agencies with limited resources give their attention to microwork in Toronto?

Q2: What do clients need to know about microtasking?

Service providers want to know to prepare clients. If clients do want to explore microwork as their main income source or as a side gig:

- How should we prepare clients for microwork?
- What skills will be useful?
- What is the technology requirement?
- How do you look for microwork?
- What are legit platforms?
- Are there risks, pitfalls, etc.?
- What are microwork employers (or "requestors") looking for
- Other than IT skills, how to prepare to be a microworker?

Research analyst, Alastair Cheng, notes that the employers and industries currently using these platforms are primarily tech companies.

If microwork is on the rise, service providers need to understand what IT clients need to know. How do service providers prepare clients with IT experience?

So, it's not just about microworkers. IT clients might also be doing the outsourcing for the company that employs them.

Q3: How do you prove the work you've done?

For reporting purposes, most agencies are focused on getting someone a full-time job. So that's the measure of program success. Microwork disconnects workers from employers. They work on tasks, on a web portal (or app) and are never in contact with employers/requestors.

How do you document this type of work? What proof does a worker have that they did work for a company? Microtaskers work through the portal and cannot get references. But, employers are still looking for traditional references.

Q4: How do I address questions about microwork with employers?

The Internet Institute's members have produced relevant research such as Platform Sourcing: How Fortune 500 Firms Are Adopting Online Freelancing Platforms. Employment service agencies are well versed in the broader gig economy and are preparing clients for this shifting work reality. But the conversation about microwork or task-based work hasn't come up.

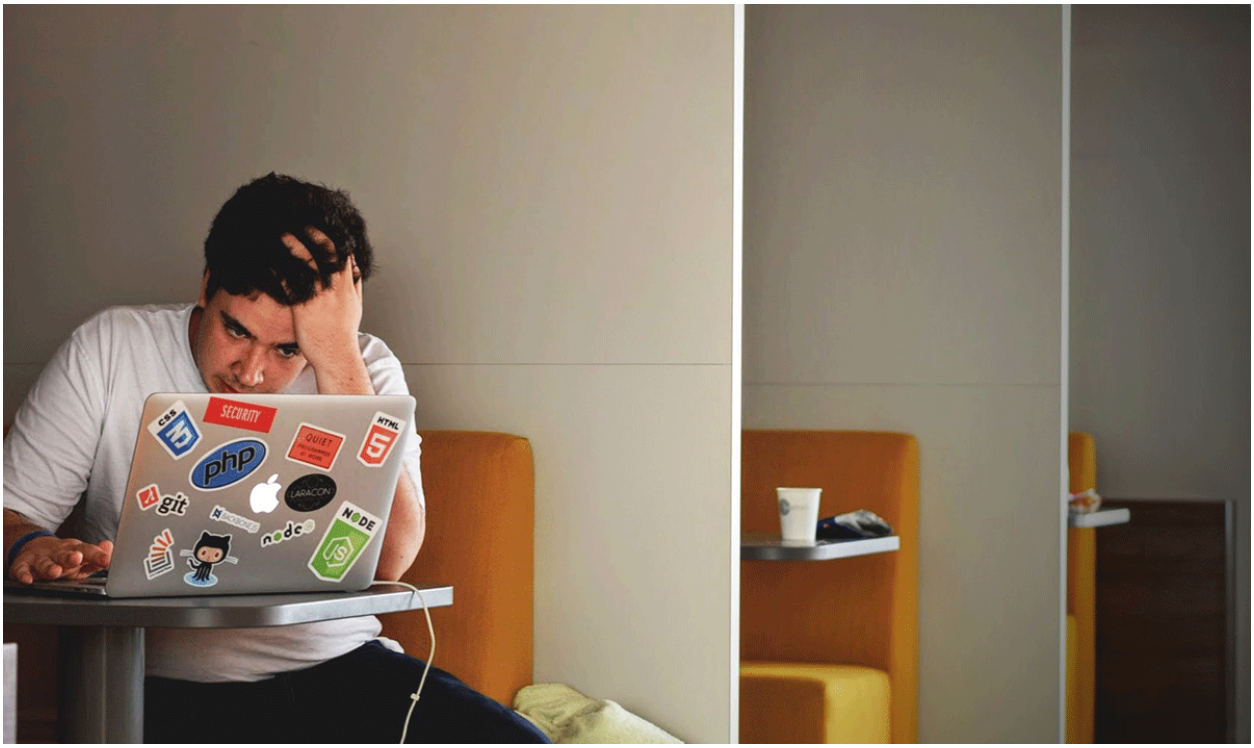
Employment service agencies work with Toronto employers and connect them with talent. Is microwork an area where they want to build suppliers? Can agencies help source microwork talent? What's the potential role here?

Microwork is not traditional full-time employment. How can service providers talk to employers about microwork? It would be helpful to work with them. If they're looking for this type of worker, then agencies can prepare clients for that reality.

Q5: Should we cover questions about microwork in our employment training programs?

Employment service providers update curriculum and workshops to ensure clients have the most accurate picture of the Toronto labour market. They are also starting to provide training on the higher-skilled aspects of gig work. Should they incorporate microwork into their training program?

> These are all important questions our community and city needs to be able to answer, sooner rather than later.



Microwork's popularity among students

> Many students may want to do this as a way of making extra pocket money or to support themselves while in school. As a student, when I was reading about microtasking I was able to relate to this.

> This article was written by a BA student studying City Studies, Urban Public Policy and Human Geography at the University of Toronto. She participated in the microtasking signals sprint in her Urban Political Geography class in September 2019 and the December 2019 microtasking session.

I found conversations, research, and other information on microtasking in the GTA through social media. The primary platforms I used were Reddit, Facebook, and Twitter. On these platforms, users discussed how microtasking allowed them to make extra money. The discussions on some of the threads also included what microtasking is, and the applications used to microtask.

I also spoke with friends and classmates to see if they had heard about microtasking, or did similar work to microtasking. When browsing the internet some of the microtasking jobs and small jobs I saw were on my YouTube feed. Some of these microtasking jobs showed up when streaming online shows and websites. One-off tasks usually don't pay, however, they do guide you to more sources and links if you want to continue answering surveys or want to earn money.

As a group, we also concluded that microwork was more prominent in the United States than Canada. U.S companies are the primary source of microtasking jobs however, many jobs are open to anyone regardless of their location.

What factors are behind microwork's popularity?

Some of the data found after doing research on microtasking:

- Tasks are available around the world
- People must have basic computer knowledge and an electronic device
- No particular knowledge is needed in order to participate in microtasking
- Making extra cash along with a regular job or other responsibilities are benefits of microtasking
- Microtaskers are often students or stay at home parents
- Looking at gender, more women microtask, however, for youth and students, it was a mix

Many students may want to microtask as a way of making extra pocket money or to support themselves while in school. As a student, when I was reading about microtasking I was able to relate to this. It does give you some money for doing small tasks that you can do on your own time and can access through a laptop. For stay-at-home parents, microtasking is a way to make some money when not busy with other responsibilities.

One clear advantage of microtasking is that each task takes a small amount of time and you can pick up tasks when you have time. This is very different from having a part- or full-time job. Microtaksing also gives you flexibility as it allows you to decide what tasks you want to participate in.

I found this interesting, as it gives users flexibility but also a choice. In conclusion, microtasking is a job that is accessible to almost everyone. It is a way to make extra money or have a side hustle. In our collective signals, we did see some people who did this as a full-time job but it was not common. Microtasking as a side gig was more common.

More information needed

When scanning articles, I found it difficult to find information about microwork's popularity more specifically in Toronto. I was able to see some opportunities listed on online news articles, blogs, and social media feeds. When speaking to my colleagues, I found they encountered the same issues. We found some sources for Toronto but started to realize that microtasking was not specifically in Toronto. Microtasking was more of a global gig/job. Another challenge was finding specific opportunities. Microtasking is not advertised as a single job. Instead, microworkers find work through an application that lists jobs. An example is Timebucks, which is a website that allows you to select surveys you want to answer.

Questions that came up were:

- Why are youth, students, and stay-at-home parents microtasking?
- Is this because this type of work is more flexible and more accessible to them?
- For students, could more frequent social media use and comfort using technology be a factor?
- Are young people the major target for microtasking?

Microtasking is a form of precarious work because of the low pay rate. It was interesting to talk with other students who are combining a regular job with this type of work to make a living or extra money. It could show that extra income is wanted and needed by people to meet their expenses. This made me think deeper about the types of jobs people have and how much they are being paid. It also made me consider how the concept of precarious work differs from country to country. Finally, I question whether precarious work will become more common across all age groups in the future.

Microtasking as a quick fix to ease the cash crunch

> Something that I found to be interesting is a sense of encouragement to take part in the sharing economy overall.

> This article was written by Valeria Gallo Montero, a BSc student at the University of Toronto studying Urban Public Policy and Human Geography. She participated in the microtasking signals sprint in her Urban Political Geography class in September 2019 and the December 2019 microtasking session.

Overall, microtasking is a sharing economy trend and a quick fix to ease the cash crunch. The appealing aspects are:

- Convenient to complete
- Easy to complete
- Quick cash
- Done anytime and anywhere

In particular, I found microtasking targeted toward young adults. Therefore, the target group includes students, recent graduates, and individuals in need of extra income. The appeal of an additional “convenient” income stream is a draw. Moreover, microtasking had a lot of positive feedback from users. People dealing with the high cost of living in Toronto see it as a solution that meets their economic needs. So microtasking is a convenient way to earn extra income and it can be fit around a demanding student schedule or anyone’s busy daily life.

A quick fix, not a stable income

Given this, microtasking seems like a straightforward, quick fix to ease the cash crunch many Torontonians face. It is, however, a helping hand. It is not a permanent or a stable income to depend on.

Unfortunately, there is a lack of information about microtasking for people who are considering it or involved in it. There is very little information about:

- Disadvantages of this type of work
- Legal policies
- Socio-economic considerations

Furthermore, there should be more public knowledge of the legal aspects of this type of work. People need clear information about the employment structure and rights. Also, protection, rights and responsibilities, and health and safety standards are missing from public policies for individuals who engage in microwork.

Something that I found to be interesting is a sense of encouragement to take part in the sharing economy overall. The sharing economy extends from peer-to-peer sharing to crowdsourcing, to microwork. Many people like the idea of helping each other out. In some ways, I felt it could be compared to the "good old days" when neighbours could ask each other for favours. This is a connection that I find interesting to think about.

TWIG's microwork reading list

> Roundtable participants requested a short microwork reading list. So we reviewed our database of over 500 related signals and related literature. The following 12 resources will help anyone interested in microwork get up to speed quickly.

> This article was written by the project's senior researcher Cheryl May with input from researchers Marco Campana and Alastair Cheng.

Following the sprint, the research team identified 12 trends that surfaced in the signals. We reached out to experts in the fields of employment, labour market, workforce trends, and equity to develop the drivers behind the trends and hosted two virtual roundtables. The experts also identified the need for a short reading list.

Together with my fellow researchers, Marco Campana and Alastair Cheng, we reviewed over 150+ articles, reports, research papers, and other media. Together with the signals data provided by students, this represents a harvest of over 500 signals. The following 12 resources will help anyone interested in microwork get up to speed quickly. TWIG's full microwork library, representing the top 100 resources, is available at microtasking.ca.

Digital automation encompasses the various technologies like machine learning, often considered in the context of AI. In this study, we are using 9% to 46% as estimates for the Canadian workforce susceptibility to automation. The statistics come from recent reports by the OECD (9%) and Brookfield Institute (46%).

The literature on this topic varies. Because our focus is foresight, we have set aside the question of how much job loss automation will produce. The related trend depicts the ongoing incorporation of "AI" into both business and other aspects of life. Accordingly, growth in AI drives growth in microwork. Anthropologist Mary L. Gray and computational social scientist Siddharth Suri emphasize this point in Ghost Work, a seminal book that belongs in your microwork reading list. If you like to listen, the Ghost Work podcast episode with Gray also merits attention.

Research-based on automation data flags job transitions out of automated roles, and a diminished share of value-added for labour. Autor and Salomon's Is automation labour-displacing? conveys results based on OECD data since 1970. Added to this, a recent study by economists James Bessen, Maarten Goos, Anna Salomons, and Wiljan Van den Berge, posits that automation is a slow process, making it difficult to prompt a public response.

The Bank of Canada study, The Size and Characteristics of Informal ("Gig") Work in Canada, added additional questions to the consumer expectation survey as a way to gauge participation rates. One-third of respondents report participating in gig work. In the context of precarious work, gig work is most typical among people who are historically affected by unemployment rates. In other words, young people, part-time workers, and specific regions.

The Oxford Internet Institute's Online Labour Index (OLI) tracks supply and demand flows. It does this by tracking projects and tasks across platforms. Canadian demand and supply stats can be viewed using the primary visualization tool and worker supplement on the linked page. The platforms monitored by the OLI encompass everything from web development to microtasks. So, the researchers view this data as indicative of the dynamics in the broader platform freelancing market. Still, the employers and industries that are currently using these platforms are primarily tech companies.

OLI-related publications provide details about the online freelance labour across countries and occupations. Likewise, the Internet Institute's members produce other research. As an example, Platform Sourcing: How Fortune 500 Firms Are Adopting Online Freelancing Platforms, provides helpful context.

Scoping out "microtasking" has been an ongoing challenge. One of the reports that shaped the scope of this work is the ILO's Digital Labour Platforms and the Future of Work. (p. 16-22). The report draws on a clear picture of crowdsourced work based on a 2017 survey of crowdworkers.

Despite the ILO's incredible work, getting apples-to-apples data about worker demographics is challenging. The World Bank produced The Global Opportunity in Online Outsourcing, a 2015 global assessment of outsourcing as a driver of growth in developing countries.

Three more for your microwork reading list

Your microwork reading list will also benefit from the following three current recommended resources. They cover the broader context of microtasking as a global phenomenon.

1. How many people microwork in France? Estimating the size of a new labour force
2. Professor Dr Oliver Serfling's Crowdworking Monitor (Germany)
3. The platformisation of work in Europe, Foundation For European Progressive Studies

Q&A with Kristy Milland

> Marco: What do you think the state of microwork in Toronto currently is?
>
> Kristy: The state of microwork is invisible.

This article was written by Marco Campana, a member of the microtasking research team. Marco is a consultant specializing in employment, immigrant and refugee services. His focus is on helping agencies to harness technology in client service delivery. He interviewed Kristy Milland in February 2020.

The state of microwork

Q: What do you think the state of microwork in Toronto currently is?

Kristy: The state of microwork is invisible. I know Statistics Canada is trying to figure out how to measure it. How do we measure it just in the Canadian labour market? How many people are doing this? Who is doing this? And so the problem right now, I think, in assessing the market here is that no one knows.

In my experience, which is with the Amazon Mechanical Turk's community, I was the only one in Toronto. There were others in Ontario, there were others throughout Canada. But as far as I knew, on Mechanical Turk, I was the only Torontonian that was part of the community.

Now, that leaves out between 40,000 and 90,000 people. One of them could be from Toronto, but it seems to be pretty low scale, as far as something that is kind of the stereotypical platform like Mechanical Turk. When discussing the state of microwork, there are a lot of platforms that we don't know about. And the reason is the platform is only here for the work and then gone once it's done.

So who is doing that kind of microwork? Probably a larger percentage of people. Especially if you start looking to people who might be doing it as immigrants or students. People who are looking for jobs and maybe are typically or traditionally excluded from the labour market. And they are the people that are the hardest to reach. The hardest to find and count.

On Mechanical Turk, there's a decent percentage of people who are doing microwork on a beer money basis. So they're here and there, up to a full-time basis. I think there are way more at the bottom end of that. But there are definitely people out there doing it. And I think the major problem is how do you even ask them if they do this work?

Q: So when you say the bottom, do you mean the beer money folks?

Kristy: Yeah, beer money is going to be the largest amount of people. And these are the people who are going to identify as a microworker and are the least likely to think about it as being work.

So, again, it's hard to find them and reach them as a result. But I would say, people who dabble in it, even for a short amount of time and give up on it. They're going to be the greatest number of workers at any given time.

When you look at that, it's also about the definition of microwork. For example, surveys on sites like SurveyMonkey. These sites pay you in gift cards and things like that. That's still microwork.

And when you start including that, the numbers are going to go up dramatically. Especially if you look at specifically surveys or contests, which I personally also view as microwork. Because they entail a lot of work on social media. Maybe you run a website, things like that. So if you start to broaden the definition of microwork, and include people tiny tasks for money, you'll include a larger number of people.

Q: The Toronto Workforce Innovation Group's stakeholders are broad; government, employers, social service groups, labour groups. What do you think they should be doing to prepare Toronto for microwork in 10 years?

Kristy: As a law student, legally we are woefully unprepared. And that is not just labour legislation. It's also tax, health, and safety legislation. We need to sit down with the laws we have in place and question are these going to be adequate. Because it goes beyond microwork. It goes to all independent contractors. Microwork is a small section of this bigger problem.

You mentioned social services, individuals who do microwork. They're paid so little. Obviously they don't do microwork because they could do something else, right? So these are people in desperate situations. They're the ones who are more likely to access the welfare state. And as a result, they're going to be a larger drain on government funding, but they make so little they don't pay back into it.

And also their employers don't pay into it, right? They have no ability to give back. They're not built for giving back. So the problem becomes who's going to pay for this and protect these workers.

I am permanently disabled because of my work. Who pays for that? I didn't have workers comp, but live in Ontario and have health coverage. But who pays for that health coverage? I was paying income taxes, and I was paying a lot of income taxes, but for workers who might have been making less than I was, who's paying to make these services available to me? And if we're not helping workers who are hurt, then we're losing workers and suddenly our unemployment goes up. And these are people in now on welfare and ODSP. This is a spiralling problem.

There are so many great suggestions on this from academia, but addressing it is about labour legislation. Who is responsible for these people and for paying into the state to give them benefits? Who takes care of these people when they're hurt, sick, or unemployed? And then looking beyond that, how do these people pay their taxes? And how did the companies that employ them pay taxes if they're not necessarily in Canada? 10 years is a very good timeline to start thinking about this. Because if we don't start looking at this quickly, the government is going to be in dire straits financially. Both in supporting these people and in the fact that just the money won't be coming in.

Q: So the state of microwork will have an impact on governments being able to even pay for services if their tax base is decreasing and this becomes a much bigger thing.

Kristy: Absolutely. And the Conservative government already thinks we're a mess. I can only imagine how bad it's going to get when over 50% of workers are independent contractors, and thus not privy to all of these legislations.

Q: One of the things we've looked at is whether the gig economy might lead to higher-skilled or higher-wage work. Have you seen any hope for that in microwork that you've been looking at? In your case, it happened. But are you an outlier?

Kristy: I am definitely an outlier, who came from a middle-class family, went to exceptional schools, and was in a gifted program. Having a leg up and I think that set me apart in the microwork economy as well. I came into it using a computer since I was born, which a lot of people my age didn't.

So I was programming, creating websites, building communities, and considered a super Turker.

There's a group of us, less than 1% of the workforce. We come in with some sort of privilege, whether it be programming or confidence. There are so many things that make you a better microworker, but even I hit the ceiling.

I do not see that gig work necessarily gave me any opportunities. I made opportunities for myself. And I'm the one that was able to do that to leverage.

For example, the media helped get out there and then that helped me get into law school. But there's some interesting work coming out of the US. It started with SamaSource attempting to use gig work to improve the skills of people in rural areas who couldn't get work. It gave them an opportunity that they would never be able to find otherwise.

There's Saiph Savage at UNAM in Mexico. She started to look at how we can use gig work to help people with their English, reading, or writing.

There are opportunities for that. But if we want to improve the state of microwork, it needs to be operationalized. You can't just do that by going to Mechanical Turk. There are people who might say: "I'm focusing on writing this week. Because I want to get better at it. You're going to get rejections if you're not already good at it."

You already have to have the skills in order to be able to leverage the work that uses those skills. It'll be interesting to see how Saiph works with that.

But otherwise, how do you put AMT on a resume? And I have, I did, but I've removed it. Because explaining what I had done all those years wasn't a benefit. Instead, I pretend I'm 27 and have only worked for a minute. It led to more questions than anything. What is Amazon Mechanical Turk? And now I've spent a 15-minute interview explaining that. They're all horrified, but they don't know anything about me.

So, yeah, it doesn't lead to bigger things. It's not like starting in an Amazon warehouse and working your way up. James Blair, who works at Amazon is now head of AWS or something. He started on the warehouse floor. I would love to see a Mechanical Turk worker get hired at Amazon.

And we have programmers. 70% of the workers in the US have a college education. Over 80%, I think it might even be 85% of Indian workers have a degree. These are not people that shouldn't be able to work somewhere else, do something better, and move up in the hierarchy. But they don't. The only platform I've seen that happen on is Lead Genius. They allow you to work your way up to project manager and stuff like that. But even that has a ceiling. I don't see people that have worked there in executive positions. I'm looking at something like Lead Genius, and thinking- how can we use this kind of work? There's an interior design platform in Italy, I think it's called 99 designs. When a student goes to an interior design college, they sign up there and build their portfolio.

And then once they have a portfolio, they can go into the real world. It's horrible but mandatory. Because it gives them an opportunity.

Q: Mechanical Turk and other platforms aren't interested in developing their workforce. They're just expecting people to come with it. What can public institutions build in terms of support and skills development for microworkers? Especially if it becomes a precarious, and bigger number trend in the future.

Kristy: When I think about this, I kind of think about things like UBI [Universal Basic Income]. And I'm not a huge proponent of UBI. Because I think the money goes back to the same rich people. But this would be a situation where universal basic services come into play. Like free internet and free computer equipment upgrades with a fast connection, for example. Then, your wages would go further. Maybe that's tied to something like social services? Training is hard. Definitely, English language training would be important for immigrants, and individuals who do not have a great education and want to do higher paid tasks. Like the move from Mechanical Turk to Upwork.

And then, I think, research as to what the high paying tasks are on sites like Upwork or similar, more niche sites will provide courses to individuals who want to do more than just labelling an image black and white or colour. Especially for younger workers.

Ontario has a powerful sector in the cooperative sector. So I would love to see government funding for cooperative gig work and microworking. Because if we can do that, we can support workers who are creating their own platforms. We can also offer training in marketing, social media, website design, etc and get them to own their own platform.

Now you have Canadian companies, paying Canadian taxes, employing Canadians to do this work. In many ways, they can be more competitive, offer greater quality services, and draw in customers. And that's super easy to do. There are people now who are affiliated with *The New School*.

They are looking at this in the Cooperative Platformation movement. Google is paying them a million dollars to create modules. Because they want people to build cooperatives.

I think Canada could lead this sector because our cooperatives are well supported. Legislatively, there's a really well-built infrastructure. If we could get workers into those roles, and leaders are willing to do this, we'd solve a lot of problems right off the bat. And then you'd have a community of workers, willing to answer questions about the state of microwork.

Right now, we're relying these workers are relying on unaccountable companies in other countries. We don't know who they are. The biggest issue with the state of microwork is the people who use the platform. Like customers of the platform and businesses, for example. Because they're in the same boat. If we provide accountable, Canadian solutions to both of these groups, we'll benefit everybody involved. I think it would really move the industry up in stature and make it better all around. It's also something that we might be able to respect a little more than (we do) right now.

Q: Do you see room for a positive future? It sounds like in 10 years, this could be a more positive future where Canada has a more active nonprofit and workforce sector built with microworkers. Is that fair to say?

Kristy: Yeah, absolutely. I think Amazon Mechanical Turk, for example, I liken it to Paypal. It's a platform. PayPal and Amazon Mechanical Turk don't instinctively say: " we're going to have bad actors and bad pay! It's going to be terrible!"

There are some things that are built into the system which can lean one way or the other. That's problematic, but it's just a platform and microwork is a form of work. And it's about how you use it and how you build the platform, and how you access it as a customer (a business). That's what makes the state of microwork bad or good.

So whether it's positive or not depends on the actors involved. That of course, is tripartite: employers, employees, and then the government. The state of microwork is up to them.

Q: How do microworkers identify themselves in the context of occupations? Do they see themselves as a distinct type of worker category or is microwork just how they work in whatever field they're in.

Kristy: I think it definitely depends on I would say the class system and microwork. So, if they are low paid microworkers, they're associated with where they work. For example, a lot of the low paid workers will be on Crowdflower or Amazon Mechanical Turk. And so they will refer to themselves as Turkers, or as Crowdflower Workers.

If they are higher paid, they will work on multiple sites, and see themselves as entrepreneurs, independent contractors, or consultants. It depends a lot on how much they're making, how they're working, and how much they're working. But people who do this for beer money are hobbyists. They won't think about it at all. If you ask them what their job this will tell you their main job. You say: "what about this?" They'll say: "It's just something I do at night while watching TV". They will have zero identity.

It's kind of multifaceted how they see themselves. I've never heard anyone call themselves a microworker. Crowd Worker maybe. I think that would probably be the most common term I've heard from workers themselves. Otherwise, it's always: "I'm a Turker" or: "I do work on Upwork". But again, the higher the pay, the more likely they are to say: "entrepreneur". Those American Dream type terms.

Myself when I put it on my resume, I put microwork consultant or microtasking. Micro Tasker is one I've heard before, but again, I think it's pretty rare. It's mostly Crowd Worker.

Q: Delving more into the demographics is a key part of TWIG's state of microwork investigation. We want to see if there are groups below the surface who do this kind of work, but not naming it. Any thoughts or suggestions for TWIG as they move forward-thinking about this?

Kristy: Identifying them is going to be difficult. I know Statistics Canada is doing focus groups right now. I would highly recommend getting in touch with them and seeing what kind of data they're producing. That might help. I had a chat with them about the state of microwork. Because they're really struggling with the state of microwork. But they might help you find these people, figure out what terms they are using, and what sources there are to get access to them. That is probably your best bet.

When discussing the state of microwork, It's really tough to nail down workers, but they're going to be the ones that you most need. There's not a lot being done in this, which is a shame.

Kristy Milland

Kristy Milland is currently working towards her Juris Doctor degree at the University of Toronto. Previously, she was community manager of Turker Nation, the oldest community for Amazon Mechanical Turk (AMT) crowd workers. In this role, Kristy had her finger on the pulse of the Turker population, with a deep understanding not only of how to get the best work quality on the platform but the labour issues that surrounded microtask crowd work. As a gig worker on AMT, Kristy experienced the precarity of this form of work first-hand. She took it upon herself to get as much attention to the issue as possible so that nonprofits, unions, academics, government, and industry might take up the cause and determine how to make crowdwork a job people could be proud to have.

She has spoken around the world about the ethics and exploitation of crowd work, how to use Amazon Mechanical Turk effectively while still respecting the workers, and the importance of regulation of crowd work as more and more jobs are being taken away from skilled, educated workers and given to the crowd. She has stepped back from her activist role to focus on law school. Her research interests involved whether the current legislative schemes of Canada and the U.S. concerning labour and employment were of use to gig economy workers, and, if not, how they could be changed to ensure that all gig workers could be protected from exploitation.

website: kristymilland .com twitter: @TurkerNational

City of Toronto: Inclusive economic development

> The City of Toronto commends the Toronto Workforce Innovation Group (TWIG) for its focus on ensuring that the future of work in the city is made up of good, sustainable, inclusive employment; especially its emphasis on a prosperous future where residents are able to contribute their skills, education and talent.

> This article was provided by Economic Development & Culture, the City of Toronto, in January 2020.

TWIG is a key participant in the future of work conversation, and the exploration of microwork in the labour market interests the City of Toronto.

Over the past few years, inclusive economic development was an emerging theme across a number of City of Toronto divisions. To be prosperous and sustainable in a globalized economy, the City of Toronto must succeed on a number of fronts. Examples include affordable housing, accessible public transit and full-time, well-paying jobs.

The Economic Development & Culture Divisional Strategy 2018-2022 establishes goals, which support Toronto's business and culture sectors. It also ensures that all Torontonians can benefit from a vibrant economy. The two most important goals of the strategy are "Inclusion and Equity" and "Talent and Innovation". Both goals support the creation of good jobs in Toronto.

> Toronto's success decades from now will be measured on how we worked with our partners. Achieving our vision and carrying out our mission requires the City of Toronto to work with residents, other governments and institutions, the private and not-for-profit sectors, and Indigenous peoples.

Addressing many of the challenges facing Toronto – such as gun violence, a shrinking middle class, regional transit, and precarious employment – will require us to work collaboratively.

In a recent meeting, over 150 GTA-based policy development professionals created policies which align with the new Corporate Strategic Plan.

Equity and inclusion principles cut across all our programs and services, including economic development. One example of such a program is the Indigenous Centre for Innovation and Entrepreneurship (ICIE), a federal government-funded program.

The future of work will look different than it does today. The City of Toronto is collaborating with our partners – including TWIG. This will ensure that jobs in the future are sustainable and all residents have the opportunity to benefit from Toronto's economic success.

Statistics Canada: Digital platform worker initiatives

A research update from Statistics Canada highlighting related studies in 2017 and 2019.

> This article was provided by Statistics Canada in February 2020.

In 2017, Statistics Canada released survey-based employment estimates on the 'gig' economy including the number of providers of peer-to-peer ride-hailing services in Canada. More recently, Statistics Canada published historical estimates on the number of gig workers based on tax information. On behalf of Employment and Social Development Canada, Statistics Canada is currently conducting a qualitative study to learn more about online platform employment, particularly about the profile, motivation and working conditions of digital platform workers in Canada. This particular research focuses exclusively on online platform workers whose jobs, projects or tasks are delivered online.

> **Looking forward, Statistics Canada will play a leading role in modifying international standards for measuring forms of employment, including online platform employment, to ensure that new and changing work arrangements are reflected.**

Statistics Canada was pleased to find out that the Toronto Workforce Innovation Group is contributing to the analysis of microtask work and look forward to continuing a dialogue to promote the release of statistical information on this segment of the working population for various jurisdictions.

Related reports

Statistics Canada, The sharing economy in Canada (2017)

In an attempt to measure the impact of the sharing economy, Statistics Canada asked people living in Canada the extent to which they used or offered peer-to-peer ride services and private accommodation services.

Statistics Canada. 2017. *The sharing economy in Canada.* The Daily. February 28. Statistics Canada Catalogue no. 11-001-XIE.

Statistics Canada, Measuring the gig economy in Canada using administrative data (2019)

Using data from the Canadian Employer-Employee Dynamic Database and the 2016 Census of Population, a new study found that the share of gig workers among all Canadian workers aged 15 and older increased from almost 1 million workers (5.5%) in 2005 to about 1.7 million workers (8.2%) in 2016.

Jeon, S.-H., H. Liu, Y. Ostrovsky. 2019. *Measuring the gig economy in Canada using administrative data.* Analytical Studies Branch Research Paper Series, no. 437. Statistics Canada Catalogue no. 11F0019M. Ottawa: Statistics Canada.

Platform Workers in Europe: Evidence from the COLLEEM Survey (2018) >

Estimates indicate that on average 10% of the adult population has used online platforms for the provision of some type of labour services. However, less than 8% do this kind of work with some frequency, and less than 6% spend a significant amount of time on it (at least 10 hours per week) or earn a significant amount of income (at least 25% of the total).

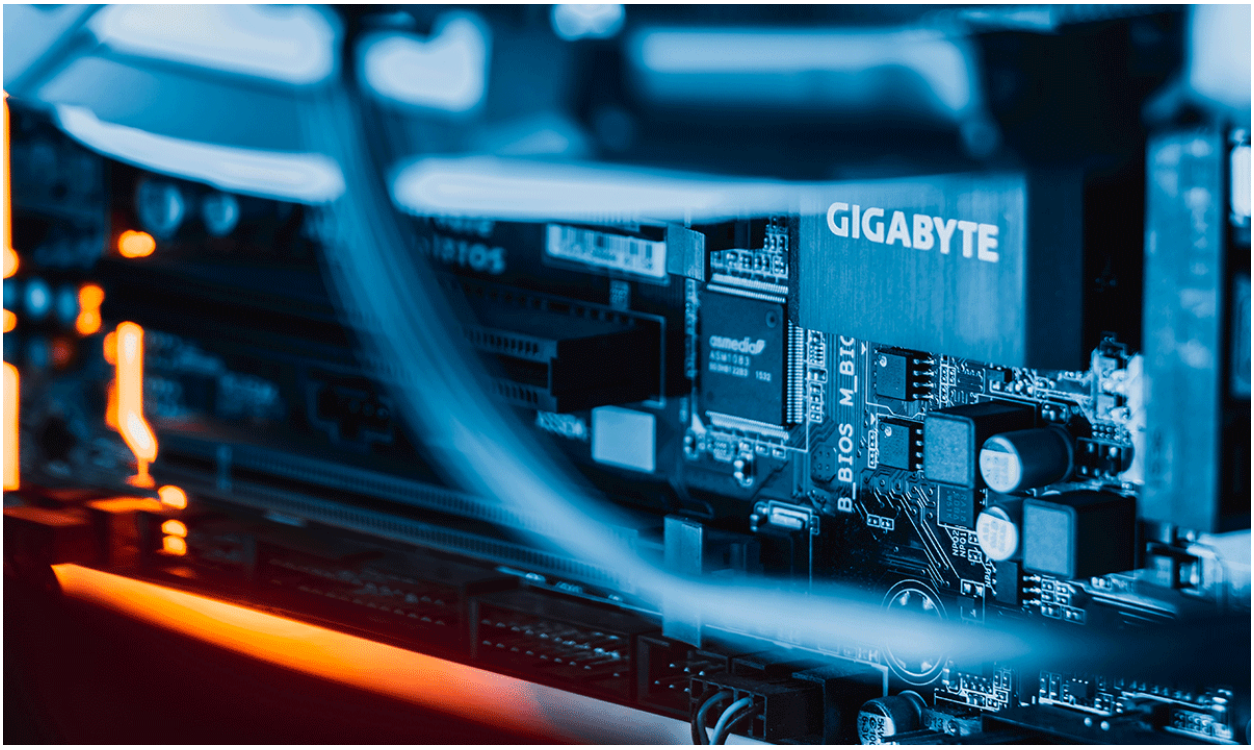
US survey from the Bureau of Labour Statistics on platform work >

May 2017 estimates of electronically mediated workers as decoded by the BLS. The estimates include all people who did electronically mediated work, whether for their main job, a second job, or additional work for pay.

e-book

MICROWORK INSIGHTS:

FROM PRESENT TO FUTURE



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.

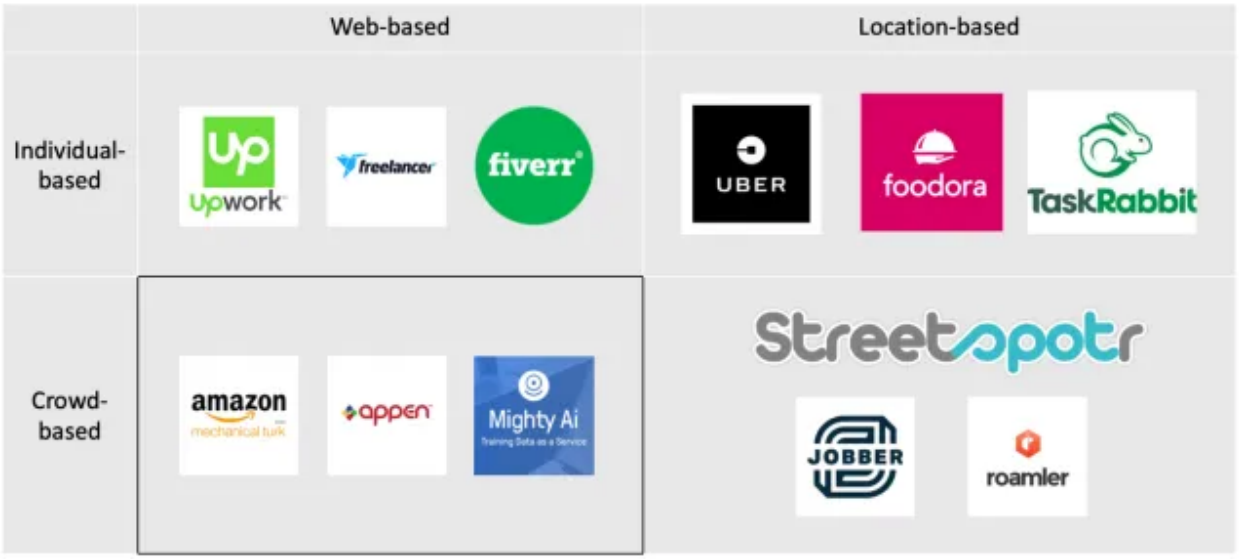
Example #1: Content Moderators

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

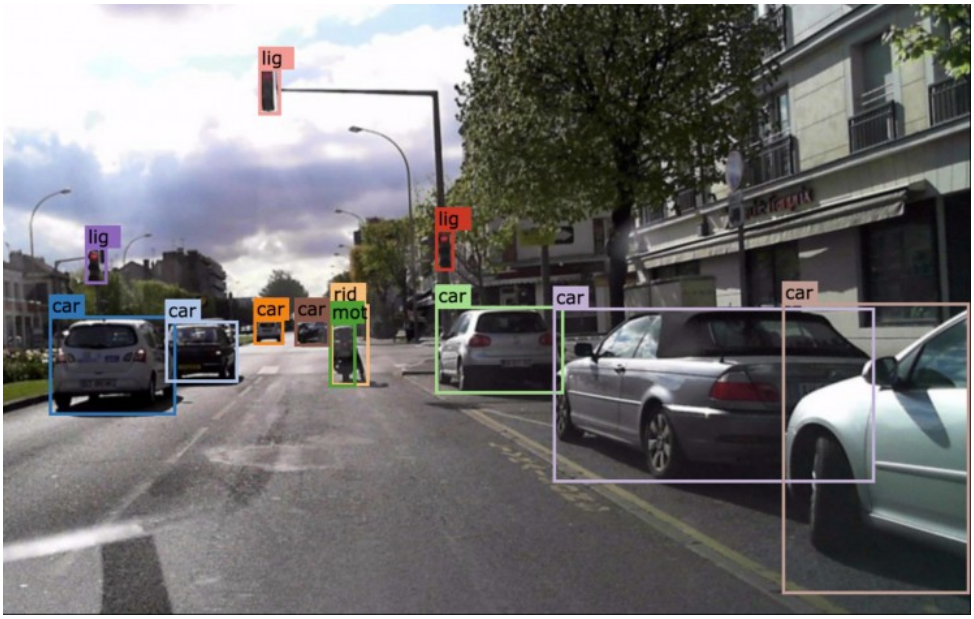
Microwork platform workers are a hidden population due to the nature of their jobs, which makes them difficult to reach. Research on online work, including micro-tasking but also other types of remote freelancing, suggests that the supply and demand for labour is often—but not always—distributed between 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.

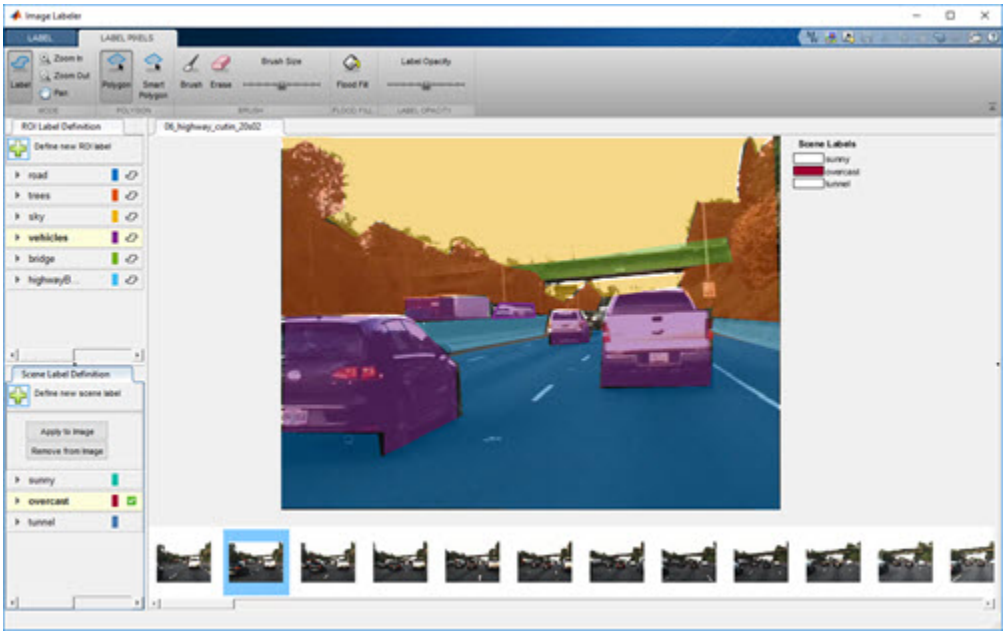
Online platform work is also characterized by superfluity and fungibility. In other words, workers feel that they are easily replaceable due to the large number of workers in relation to the offer of tasks, and platforms rely heavily on reputation scores and evaluations to distribute these tasks. Workers 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."

> 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.

> 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.

> 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.

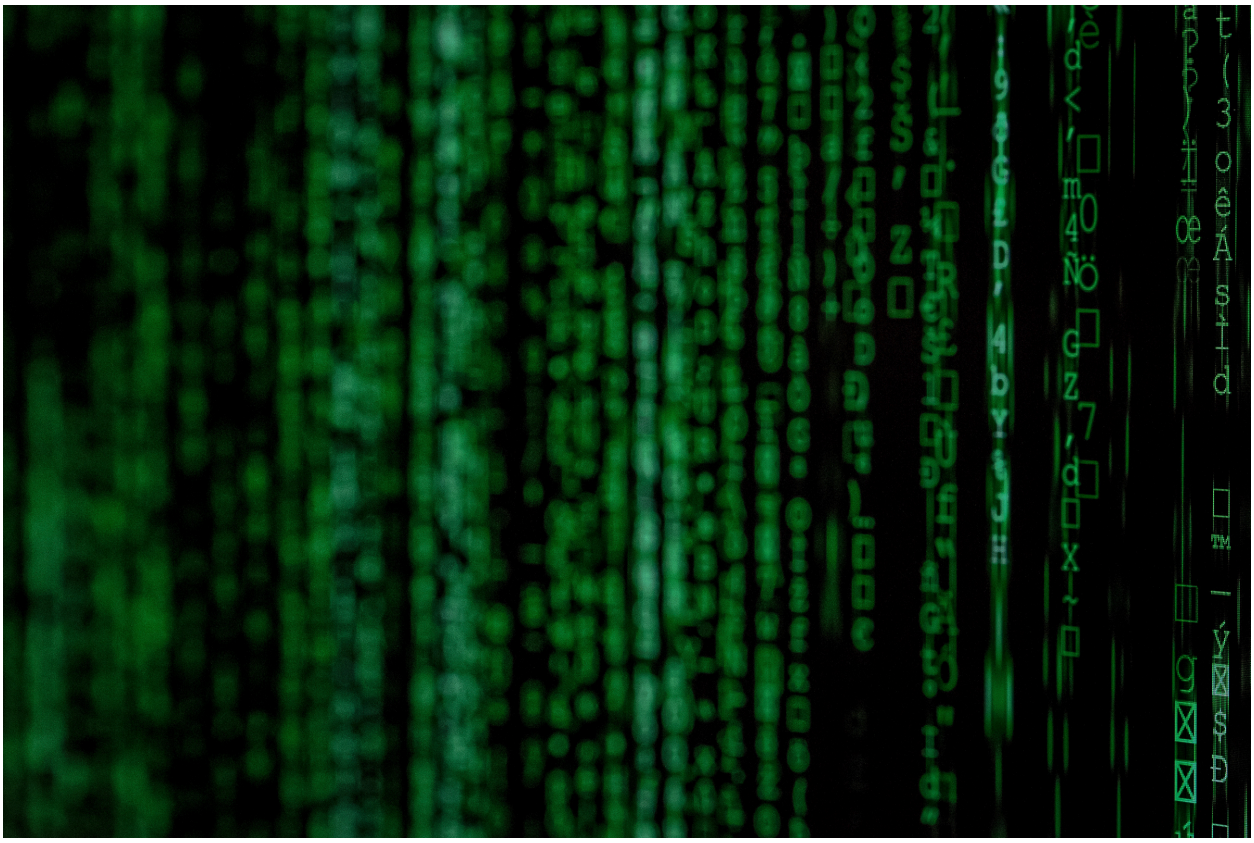
Thanks to OLI, we know something about how many companies in countries are using online outsourcing platforms. We also know that it is increasing. On the other hand, little is known about microworkers themselves.

The TWIG microtasking project was designed to be open to microwork as high-skilled or low-skilled 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.

> 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 PathAI. (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

> 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 AI 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.

> 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 over-represented.

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. Socio-economic 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.

> 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.

> 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.

AI-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.

> 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 data-labelling 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 gig-worker 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.

> 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

> 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.

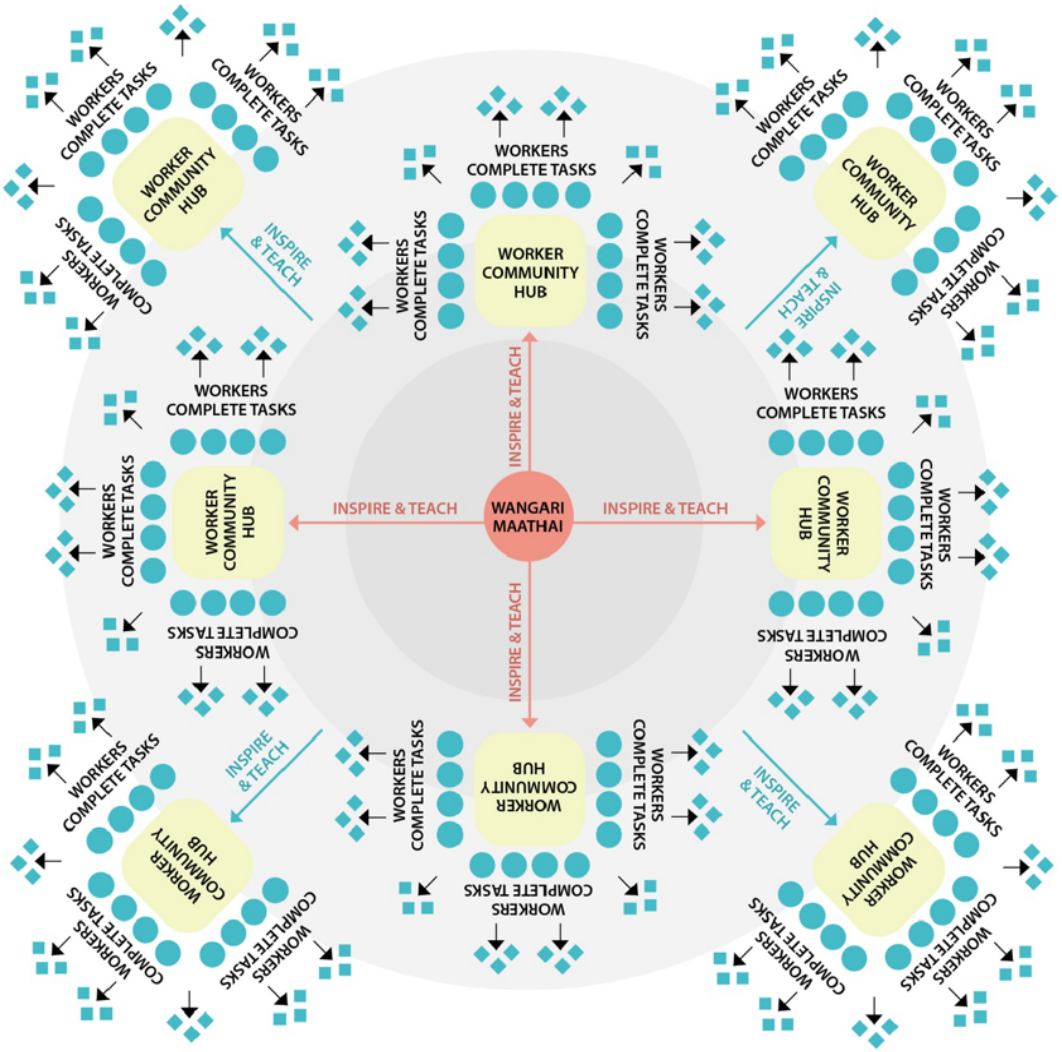
According to Wangari, soil erosion and tree cutting triggered these changes. She could see how a decrease in usable farmland might cause greater disputes over resources while creating further social problems.

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

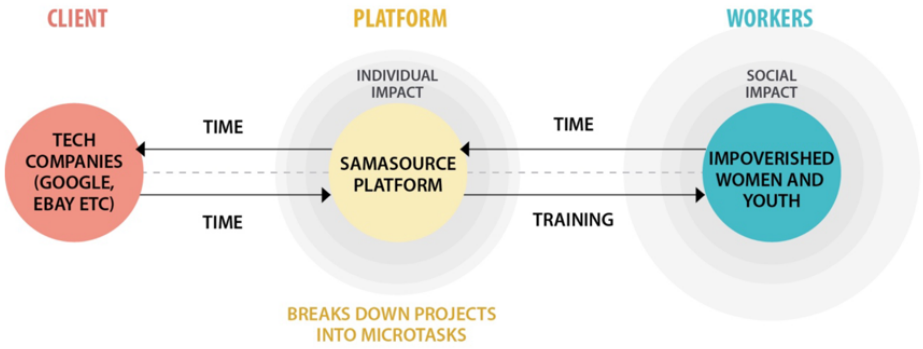


Aggregate action in the digital sphere

> 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.

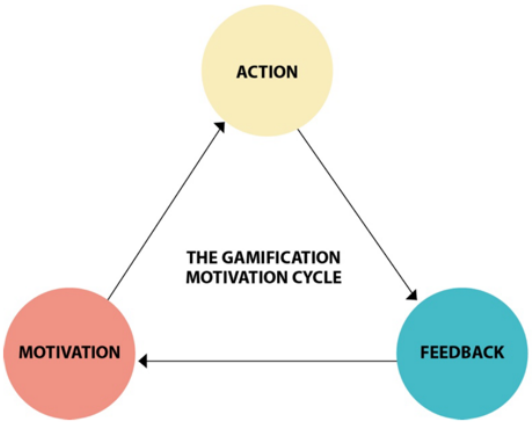


> The social impacts that occur due to this mechanism are important. Individual workers gain training and personal wealth that can significantly alter their lives and the lives of their families. As each person is able to improve their own situation, they can collectively affect their social environment 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?



> 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

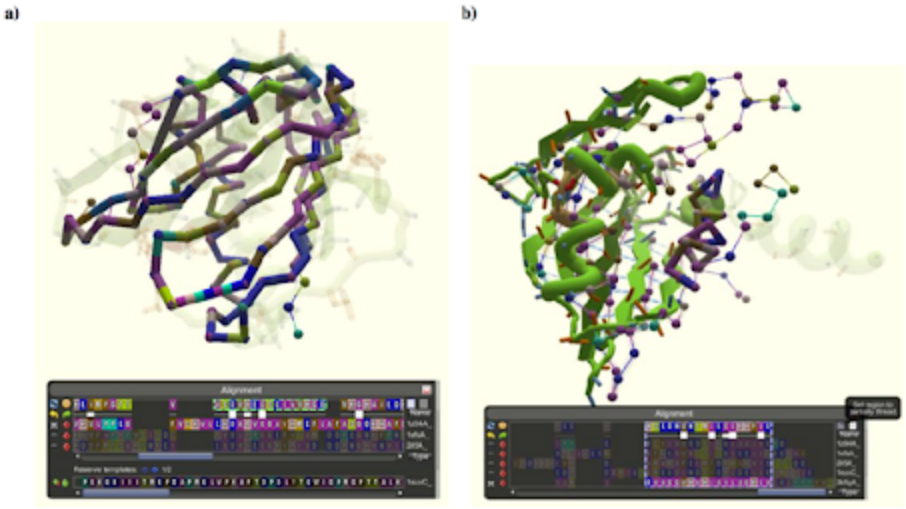
The Foldit example

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?

> 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.

> 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, AI 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 AI, one might consider the current state of AI adoption. A recent McKinsey Global Survey included a range of capabilities that enable AI to solve business problems.

> 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 AI-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 AI 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 AI does jobs, where do people find their purpose? What makes a purposeful life beyond work"?

A different society might be developing

> 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, AI's omnipresence is concerning for many people. The introduction of AI 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.

AI/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 AI/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 AI and robotic automation services.

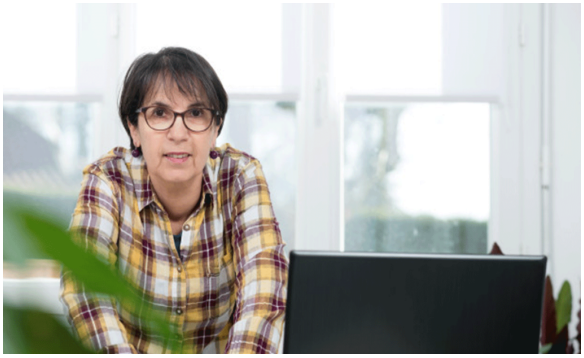
As an example, the person-to-person support accessed through online chat is a feature of all transactional websites. The more automated online activities become, the more important it may be to be able to chat 24/7 with a real person. Even more salient, the presence of people in the service continuum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

> 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.

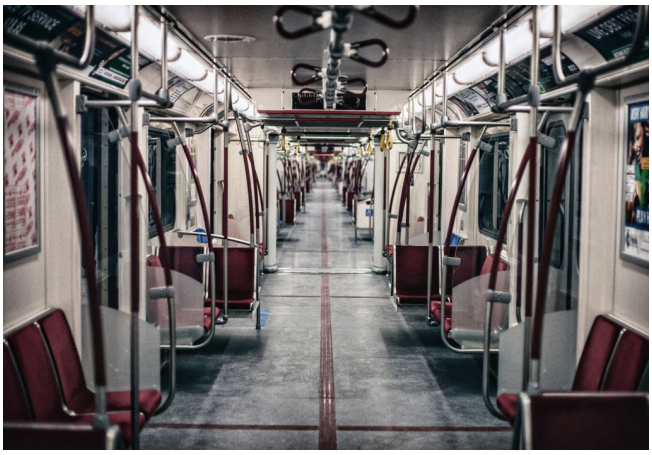
The line between instruction and design on a platform could keep blurring. The blur might be subtle, but the effects are significant. Systems design includes everything from training scalability to asset development. Intellectual property vs human capital could become hot-button labour market discussion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

> "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.

AI, 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 work-play 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.

> 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; part-time 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.

report

FORESIGHT:

A DEEPER DIVE

Foresight: A deeper dive

Phase 1: A microtasking signals sprint

Phase 2: Microwork trends to consider

Phase 3: What's driving microwork

Phase 4: Implications of microwork futures

A deeper dive into microwork

> Secondary research provides a good basis for much labour market analysis. In this project, however, we faced the challenge of finding good information on Toronto's invisible workforce, specifically related to microtasking. Therefore, TWIG decided to dive into foresight methodology to reduce uncertainty.

Foresight can improve the resilience of program design and create readiness for the possibilities of the future.

The futures of microwork are the result of meticulous collection and analysis of the changes that are actually taking place right now. While the facilitators applied creative thinking to develop the scenarios, they were working with a creative logic that was derived from data and participatory action research. Each phase of the foresight project builds on the research and insights gained from the prior phase. So when we arrived at the project's five areas of strategic perspectives, we had processed thousands of inputs.

The microtasking research team applied foresight to:

- Systematically consider plausible, possible, and at times improbable futures
- Understand the implications resulting from these different futures
- Use the insights gained to improve present-day planning and decision making

Phase 1. Signals of change

The project started with a signals sprint by a class of University of Toronto Scarborough students. The students provided 374 signals and the researchers found an additional 104 signals. The research team also reviewed 85 reports on non-standard employment, the gig economy, and specifically microworking. From the initial research phase, twelve microtasking trends surfaced.

> Output: Microtasking signals sprint

> Output: Microwork trends to consider

Phase 2. Expert interviews and roundtables

The trends provide a sense of how people are working. Next, we needed insights into what is driving the changes to the way people are working. We reached out to 58 subject matter experts identified through project research. Nine people participated in one of two roundtable sessions held on October 30, 2019. We spoke with other experts in individual interviews to help us with specific aspects of microwork. The roundtables and interviews informed the drivers used to develop the scenarios in workshop 1.

> Output: What's driving microwork

Phase 3. Foresight workshops

The foresight workshops were designed to consider how microwork might affect **life in Toronto over the next decade**. They were attended by program designers and managers, standards setters and policymakers, and other stakeholders in the area of workforce development.

We also wanted to ensure that at least one person at each table was a young person who was living with non-standard employment as their reality. A small honorarium was offered in recognition that their time was not being compensated through an employer.

We also wanted to create an opportunity for Toronto's social service agency staff to think about how microwork. Early research indicated that it is likely to affect their clients and programming in the coming decade. So we also made an effort to get people working in the field around the table. Marco Campana reached out to human services professionals and prepared an article on the top five questions they have about microwork >

The half-day workshops were knowledge-building and sharing opportunities. However, they were also a no-fee professional development activity that introduced microwork. The workshops were rated as informative and highly interactive, and we offered a certificate of completion for professional development purposes.

Maggie Greyson and Cheryl May led the workshops. Each workshop consisted of four working tables. The workshops were facilitated by Alastair Cheng, Ana Matic, Goran Matic, and Marco Campana. The facilitators also authored the scenarios that were distributed between workshops. Following workshop 2, the facilitators populated implications and strategic perspectives databases based on their notes.

Workshop 1. Scenarios

The first workshop was held on December 10, 2019. Participants considered the change drivers, then selected the top two drivers based on importance and uncertainty. Then each team was given a set of drivers. Finally, they developed the framework for four microtasking scenarios for 2030.

Participants were not asked to bring any specific knowledge of foresight or microwork.

Workshop 1 pre-work
Apart from completing a brief questionnaire, all you need to bring is your perspective, voice, and creativity. To prepare for the workshop, we've have identified six drivers that contribute to the growth of microwork. Your pre-work is to rate each driver according to how it makes you feel, your level of uncertainty, and impact. Please complete the online questionnaire. It will take approximately five minutes.

A brief talk by Julian Posada level-set the discussion about microwork. Julian also prepared an article for this report. Microwork and the Platform Economy.

Alastair Cheng provided a pre-workshop brief that highlighted some of the reasons why a look at microtasking is important.

- The numbers of people involved in the online gig economy continue to rise, as evidenced by the Online Labour Index.
- World Bank findings indicate that statistically, the majority of microworkers on Mechanical Turk are women and that overall, young people are over-represented in online outsourcing jobs.
- The technological and algorithmic intermediary between work and employer triangulates the relationship in ways that fall outside established standard and nonstandard employment agreements.
- From the perspective of the economy, the insecure nature of microwork weakens wage growth overall.

Output: Scenarios Toronto 2030

Workshop 2. Implications

This workshop was held on January 7, 2020. It was designed to take us into the future. The research team harvested the inputs from the December session to develop four 2030 microwork scenarios.

In this session, groups were assigned their scenario as a pre-read. They worked with the same groups as workshop 1. New participants were assigned across the tables.

The first part of the workshop was devoted to discussions about the implications for the workforce in 2030. The top 16 implications were voted on and eight were selected as the most significant and most surprising. Participants then reconvened in their groups to set out strategic perspectives based on two implications per group.

At the start of workshop 1, participants presented an overall negative view of microwork. However, as the discussions progressed, people's ideas about microwork gained complexity. Therefore, awareness grew into acceptance. The opportunity to consider how microwork could be used in beneficial ways opened up.

At the start of workshop 2, Ana Matic introduced her thesis, Microwork: Theory, Models and Mechanics for enabling impact through aggregate action. Ana also wrote the chapter, Aggregate action, complexity, and microwork, exploring preferred microwork futures.

> Output: Implications of microwork futures

Phase 4. Foresight studio

The research team convened to analyze the workshop outputs and synthesize them into a set of strategic perspectives. First, we assembled the 42 discussion threads that came out of workshop 2. 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.

> Output: Strategic perspectives on microwork futures

Resource: Design research

We used the Design Research Techniques online repository. It's an evolving resource with a range of techniques organized by the project lifecycle they best suit. The methods can be used with multiple stakeholders including potential users or audiences, partners or internal teams. www.designresearchtechniques.com.

Are you planning research?

The presentations, documents, and props we used for this project are documented in the Microwork Project Toolkit.

Phase 1: Microtasking signals sprint

> We started the project by detecting microtasking signals of change, but first, we needed to establish a definition for microtasking. We worked with the view that microtasking is a subcategory of gig-working. Generally, the term “microtasking” is used to refer to people engaging in tasks on microwork platforms. These include Figure Eight and Amazon Mechanical Turk.

Microtasking definition

Our working definition for the 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.

Microtasking is not just work that is small or different. We also focused on the kind of microwork that is crowdsourced or 'spliced' onto other ways of earning. We found lots of connections with AI and machine learning.

> The explosion in microwork is indicative of a major shift in the economy and how people respond to their economic situations using the resources that are now available. It is crucial to have an organized response to this through research and responsible policy-making before it precipitates into a cultural shift that we may not have the tools to address.
> – Haris Akhtar, University of Toronto Student

The microtasking signals database

From September 19 to October 9, 2019, U of T Urban Political Geography students participated in a "signals sprint" to find microtasking references. They collectively analyzed 374 references related to microjobbing. Students analysed each reference as social, technological, economic, environmental, political or values, a STEEPV framework. Students also considered the importance of each signal and provided a summary of why it is important.

The project would not have been possible without the incredible harvest of resources the students collected. Our appreciation also goes out to their professor, Michelle Buckley, for guiding them in this research and making it part of their coursework for the term.

> Microtasking is everywhere online, you just need to realize what exactly it is!
> – Noah Ramcharran, University of Toronto Student

The 2×2 Matrix process chosen for this project begins with an organized search for, and collection of, evidence of change. Following a briefing presentation and class discussions, students followed their understanding of microtasking. We asked them to capture instances of actual change, called "signals". Each student contributed eight signals based on their experience and research.

The microtasking research team wanted signals that ranged from strong to weak. Signals that challenged the core research team's assumptions provided a richer environment for foresight analysis.

The signals sprinters

> Micro-tasking is the new way to make extra income.
> – Dhanak Ohri, University of Toronto Student

Haris Akhtar, BA
Will Bromley, BA
Daniela Caneo
Valeria Gallo Montero, BSc – *Article: Microtasking as a quick fix to ease the cash crunch*
Mei Hung, BA and MA
Kayona Karunakumar, Honours BA
Frankie Chi-Hin Leung, BSc
Neha Meher, BA
Dhanak Ohri, BA – *Article: Microwork's popularity among students*
Pravleen Parmar, BSc
Rachel Bonita Persaud , BA
Pravleen Parmar, BSc
Rachel Bonita Persaud , BA
Anisha Prasad, BESc.
Noah Ramcharran, BA
Daniel Ravindran
Zaineb Shahid, BA
Aliya Shivraj, BSc
Zainab Sidiq, BA
Herve Thuram, BA
James George Vlahos
Ali Zaheer
Xinrui Zhang
Richard Zhao

Phase 2: Microwork trends to consider

> Everyone notices trends in the world around them. Spring 2019's fashion colour was yellow. Meat-free options are on the rise. Part-time work is growing. Sometimes we base these on facts, but sometimes we just notice things happening. We apply cognitive bias to memory and to make sense of the world around us in the present. We also use it to consider the future, to plan, and to avoid risks.

Cognitive bias is a concept introduced by Amos Tversky, Dale Griffin, and Daniel Kahneman (Heuristics and Biases: *The Psychology of Intuitive Judgment*). In *Thinking, Fast and Slow*, Kahneman describes fast thinking, which is the kind of thinking we do when we are scanning for signals:

> As these links are formed and strengthened, the pattern of associated ideas comes to represent the structure of events in your life, and it determines your interpretation of the present as well as your expectations of the future.
> – Daniel Kahneman, Thinking, Fast and Slow

Cognitive bias helps us to collect signals of change. The microtasking signals sprint is a window into the world of a third-year class of University of Toronto Scarborough Urban Political Geography students. The group is diverse in culture and academic orientation, while at the same time representing what a microtasking target group would look like. Many were seeking part-time work. Also, the group has a good representation of women, and everyone uses tech in their daily lives.

Identifying the trends

The TWIG research team collected even more signals. Together we created a dataset of hundreds of signals. These are based on things that are actually happening right now. Signals are the beginning of the foresight journey. Specifically, we wanted to consider how microwork exists in our world today. Then, what we can learn by thinking about it in a future state.

Signals of change are the basis for microtasking trends. The team mapped over 400 signals to 12 microwork trends. The trends are what is happening now.

People familiar with microwork or workforce trends reviewed the trends. We asked roundtable participants to consider what is driving the trends. Then we listened for words that convey a direction such as “increasing,” “growing,” “stopping,” and “failing.”

Discovery: Trends deck

Explore the microwork trends with a group of people. Print the trends on card stock and cut along the lines to make a deck for each person. The template for the trends cards can be downloaded from the microtasking toolkit.

12 microwork trends

1. AI's eating the work

Advances in fields like machine learning allow de-skilling or full automation of work. Formerly the tasks required human involvement. Microwork refers to these as “human intelligence tasks” or the acronym, “HIT”. AI is a significant feature of the Fourth Industrial Age. There is no doubt that it will be as disruptive as previous technological eras.

And likely, more. Although the trend has a negative orientation, AI is taking on mundane, monotonous, and dangerous tasks. New professions will emerge in the age of AI. For example, AI will beget jobs related to managing AI and developing code. HITs include activities that need a philosophical or values orientation.

Subtrends

- Vast improvements and investment in AI technology let us automate judgements at scale.
- Higher-value tasks may be susceptible to breakdown into microwork.

Change drivers: Intelligent advances – Built for profit – Uneven Growth – Policy Lag

2. Everybody's hustling

For many people, working life as one job for life, much less one job at a time is no longer the norm. Many people are temping and freelancing. People juggle many roles, build side-hustles, and keep working longer in life. Income precarity and the need for multiple income streams is no one’s idea of a good thing.

But there’s also a concern that government interventions limit the opportunities to earn. The containers (work-life) blur. Income stagnates as people “do-more-with-less.” There’s the sense that everybody is working and nobody is working.

Subtrends

- “Gigification” is actually a mega-trend that normalizes work outside the standard employment relationship.
- The side-hustle is a subtrend that brings the reality of wages shortfall together with a lifestyle vibe.
- Canadians are living (and also working) longer. A little extra cash or points isn’t the worst thing.

Change driver: Social modernization

3. T.O. grind

There’s consensus that Toronto residents face rising affordability challenges. Toronto has a global technology status. Yet, technology also widens the gap between knowledge workers and service-level workers. Grinding T.O. also acknowledges that everybody’s hustling. There’s still a pull-yourself-up-by-your-bootstraps vibe in the city.

Subtrends

- The dark side. There’s a rising affordability crisis for all but the most affluent. The sub-trend increases economic pressure on workers.
- Toronto’s risen to a global tech hotspot. The city’s AI emphasis position it to continue that leading role.

Change driver: Uneven Growth

4. Intimate labour

Microwork can get very personal. It commodifies small tasks that need human sensibilities. People sell access to their opinions, location and tastes. It also extends to befriending, crowdsourcing advice, and opinions. HITs give the automated services sentience.

In one case is a young woman who used an app that made it appear that she had a boyfriend. A microworker composed text messages sent at regular intervals. When she no longer needed to demonstrate that she was in a relationship, she kept the service going. She found the communication so reassuring that she felt she would miss it.

Increased privacy concerns balance this trend. People are less apt to share information without compelling reasons or adequate compensation. Litigious action also deters people from engaging in online intimacy.

Subtrends

- Polls and surveys are a subtrend. Most everyone loves to give their opinion on everything.
- The internet and social media support a sense of non-commital, easy intimacy that is transactional in nature.

Change drivers: Uneven Growth | Social modernization

5. Work as play

Work can mean very different things to different people. Completing an image-tagging task to unlock a cat video is casual work for casual income. In a city like Toronto, where rents are high, gamified microtasks can be fun for pocket change. When there is higher worker supply than work demand, microwork platforms and requestors set rates for play rather than pay.

Subtrends

- Microwork as casual work, casual income.
- Free stuff is always a compelling reason to spend time on tasks. Couponing nets out to be non-productive work when viewed in the context of wages.
- Microwork is ubiquitous: we're all already microworkers. Think tagging those images for fire hydrants!
- Students are smart and need money. This drives a trend toward virtualizing jobs such as tutoring.

Change driver: Social modernization

6. People as a service

Platforms make coordination with outside parties easier. Thus, more jobs can be outsourced, replacing permanent staff. Breaking down jobs into small projects and even smaller tasks has become commonplace. Some of this takes place in direct relationship with contractors. But the presence of platforms as intermediaries makes it easier to view people as a service.

The result is that there is more awareness of the gig economy and crowdsourcing. This might also shift consumer values and influence corporate practices. Decent work, fair pay, and other labour movements shed light on outsourcing, offshoring, and labour arbitrage. Wagemark is an exemplar.

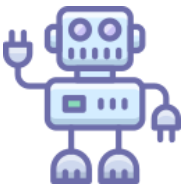
Wagemark is an international wage standard used by companies, non-profit organizations and government agencies to certify that the ratio between their highest and lowest earners is competitive and sustainable.

Subtrends

- As microjobs get more specialized, they give rise to more specialized platforms.
- Companies are outsourcing for services that used to permanent staff hires.
- All work becomes gig, contract, or precarious.

Change drivers: Collaborative Connections | Built for profit

7. Robots are making jobs



AI development actually drives microwork demand. Microjobbing is the new labour and service economy work. But, it doesn't create a career path. There is a shortage of people who can fill skilled jobs related to AI.

Toronto's profile as a tech centre is also on the rise. This extends to Toronto as an education and training hub for new technology jobs. Although the training is often digitalized, developers and instructors are often local to Toronto.

Change drivers: Intelligent advances | Uneven Growth

8. Solidarity in seconds

Most microwork platforms don't offer forums or community chatroom for microjobbers. Microworkers self-organize. They use independent forums and other communal tactics. Attempts to advocate for better pay and conditions are gaining traction. Platforms and requesters hold power to bypass organized workers.

Furthermore, the current regulatory environment allows platforms to shut out workers with impunity. A basic income for microworkers involves coordination across all levels of government.

Platforms and requesters hold power to bypass organized workers. Furthermore, the current regulatory environment allows platforms to shut out workers with impunity. A basic income for microworkers involves coordination across all levels of government.

Subtrends

- Microjobbing communities and online forums.
- Crowdworkers and unions are attempting to organize the sector to advance workers' rights.
- The push among activists to establish alternative platforms and digital economic organizations.

Change drivers: Intelligent advances | Uneven Growth | Social modernization

9. The microstate

Governments are being called on to develop microwork labour markets. But they are not sure how to regulate or operate in a non-standard employment environment. Interventions might include new policies, public projects or guaranteed income pilots. In Toronto, inclusive economy programs align with considerations that could help microworkers.

Subtrend

- Urban cowboy e-capitalism continues to bypass dysfunctional government policy-making.

Change drivers: Collaborative Connections | Intelligent advances | Policy Lag

10. Lifesaver

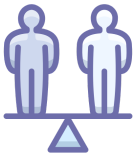
Many people who are shut out of standard employment turn to microwork. It can be the primary source of income for young workers, students, caregivers, people with disabilities, retirees, and newcomers. Unfortunately, the perceived "access" and "equality" of microwork can further disadvantage people who face barriers to employment. The lifesaver can trap them in low-paying work with no opportunities for advancement.

Subtrends

- Global crises are displacing human populations. This cuts them off from conventional work opportunities.
- Microwork platforms mean that global workforces are now available for hire by anyone.
- “Mom jobs” is a subtrend related to women caregivers. The marketing juice is “why not get online and do something productive?”
- Microwork as modern-day manufacturing jobs, where workers are paid based on production.

Change driver: Policy Lag

11. Microworking for good



People seek intrinsic benefits beyond their earnings. For one thing, Microwork offers a feeling of being your own boss. Sometimes, it is also positioned as a learning opportunity. Then there’s the sense of satisfaction of completing tasks that help other people. From tagging photos to translating languages, microwork can offer intrinsic rewards.

The trend could move in the other direction. As we spend more time in front of screens, it may be that people seek place-based opportunities. But, people who want to microtask will seek it out. For them, the gig economy is alright, they’re OK with the screen time, and they like the flexibility or diversity of work microjobbing offers.

Subtrends

- Using microtasking for research, by academics for research and survey recruitment.
- Canadians are working longer, and microtasking can fit with a mature lifestyle.
- The idea that participating in microtasks as a learning activity can help build memory and mental agility.
- The entrepreneurial mindset responds to the microwork vibe.

Change driver: Social modernization

12. Borderless work

Any of 3.5+ billion people already online can pick up microtasks. Microwork platforms represent a massive, borderless workforce available 24/7. Cell and internet access levels are projected to rise. Developments such as automated translation have also reduced collaborative barriers.

Also on the rise are issues and concerns connected to labour arbitrage and offshoring. Then, even greater precarity exists for microworkers with unreliable internet access.

Subtrends

- Machine and machine-assisted translation tools continue to improve.
- Internet use continues to grow, with quality of connection also improving.

Change drivers: Collaborative Connections | Intelligent advances | Built for profit | Uneven Growth | Policy Lag

Phase 3: What's driving microwork

> During the December 2019 workshop, the groups discussed the drivers and chose two – built for profit + policy lag – as the most important and most uncertain. Then these were used to develop the scenarios for the second workshop.

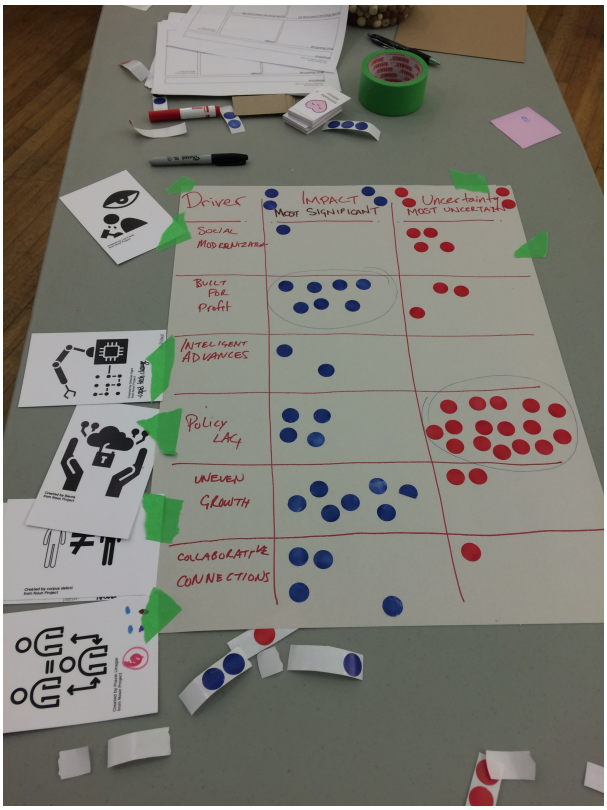
> Change is the process by which the future invades our lives.
> – Alvin Toffler, Future Shock (1970)

Six changes driving microwork

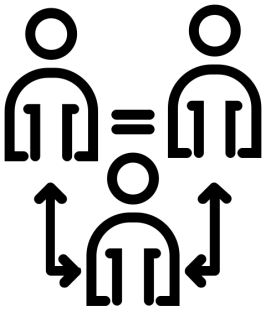
The research team identified what's driving microwork by analyzing the signals and developing a set of 12 trends. Then the trends were presented at two expert roundtables and in 1:1 interviews with stakeholders. From the feedback, the team identified six microwork drivers.

Participants received the drivers in advance of the first workshop. Not surprisingly, their initial response was frustration and a sense of powerlessness. Next, facilitators led discussions about all six drivers at the workshop. Through discussion, their outlook became more positive. Recognizing that change is fluid and directions can change, gives us more control over our futures.

The "Table talk" section reflects the group discussions held at the first microwork session. The group chose the drivers 5 & 6 – built for profit + policy lag – as the most significant and most uncertain. Then these were used to develop the scenarios for the second workshop.



After a robust discussion, participants presented the two drivers suggested by the group, and then voted individually. Voting was done on the basis of importance and uncertainty.



Created by Pravin Unagar
from Noun Project

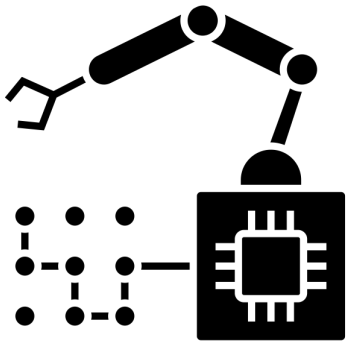
1. Collaborative connections

Working across state and organizational borders keeps getting easier

Billions of people own devices that not long ago would have been supercomputers. They use tools like 5G and Skype to connect, Salesforce and G Suite to coordinate, and Upwork to hire. Working across state and organizational borders also keeps getting easier. It is possible to work with anyone, from anywhere — or break traditional jobs into subcontracted tasks. The result has reshaped everyday work. People spend their days on chat and teleconferences with a remote team of co-workers, freelancers and service providers.

See "Table talk" for all facilitators notes on the drivers and change.

> My group looked at this driver differently. They viewed the notion of collaboration as a glue, bringing together their two most significant drivers, "policy lag and "unequal growth". Instead of looking at collaboration through the technical lens it represents, my group saw it as the only way for progress to be made. A perspective that came through strongly as we developed our scenario, *The social impact franchise*.
> – Marco Campana, Group 3



Created by Srinivas Agra
from Noun Project

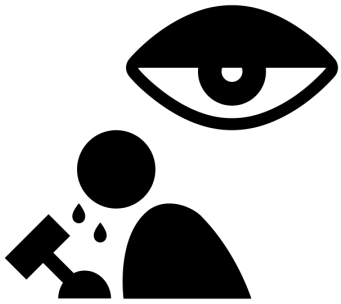
2. Intelligent Advances

We're training computers to do human work, but cheaper and better.

Computer algorithms connect you with a ride, translate your news, and analyse your medical tests. Sensors, robotics and AR (augmented reality) are becoming part of our everyday lives. But these systems depend on "human intelligence tasks" (HITS). Microtaskers fulfil invisible but essential HITS around the clock and the globe. Their activities also "train" computers to take on ever more complex work. Toronto's profile as a tech hub is bringing high-paying jobs such as data scientists. These are people who build and support the tech-based systems that are doing human work. Together, data scientists and microtaskers are training computers to do human work, but cheaper and better.

See "Table talk" for all facilitators notes on the drivers and change.

> AI wasn't a hot topic of discussion – potentially because even the most technical people at our table were primarily business- or policy-side folks. That may have led to either a sense of lack of expertise (which would make it difficult to discuss) or possibly a shared inclination to see it as highly significant, but not necessarily all that mutable. That did lead us to spend some time talking about how inexorable the technical future really was. But the discussion didn't stay top-of-mind for the group relative to the other drivers. The feeling around the table seemed to be that while robots will probably arrive, the important thing is what we do with them. And that dimension seemed more connected with other drivers.
> – Alastair Cheng, Group 2



Created by Luis Prado
from Noun Project

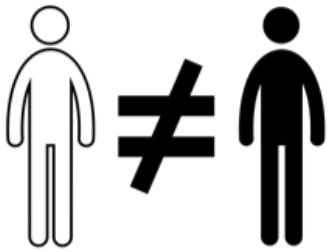
3. Social modernization

Alternate ways of living and earning are gaining social acceptance.

1950s ideas about gender, family, identity, and values are fading. Alternate ways of living and earning are gaining social acceptance. Furthermore, many Canadians seek a work and life balance, which is a highly individualized notion. Employers and microwork platforms promote entrepreneurship and flexibility and question the notion of who an employee is. The message of autonomy resonates with many. Yet for some, the notion of work and life balance, of being your own boss, doesn't quite live up to the promise. The reality is that the microtasking workforce is geographically scattered and demographically diverse. As a result, it is difficult for microworkers to influence pay or terms of work.

See "Table talk" for all facilitators notes on the drivers and change.

> Our table selected this as one of the two drivers we submitted. One big argument in favour was its role as a distal and deep cause of other changes. Because it wasn't as obvious how the future might look culturally, those in favour also suggested, its effects could be wide-ranging and unexpected.
> – Alastair Cheng, Group 2



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from Noun Project

4. Uneven growth

Toronto keeps booming, but not everyone benefits.

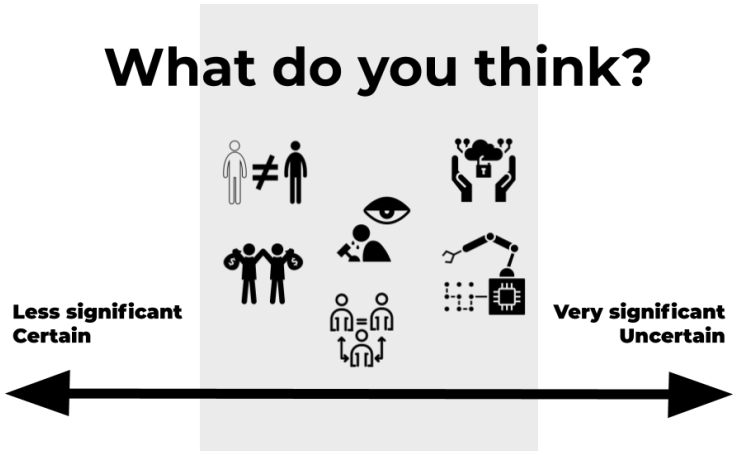
Job and population growth mean that Toronto is more diverse, younger, richer and bigger than any other region in Ontario. But Canada's wealthiest city is an unaffordable "hourglass." As elite workers thrive, Toronto's socioeconomic middle is shrinking. A recent study concludes that Toronto has the largest gap between rich and poor in Canada. Furthermore, income inequality disproportionately impacts people who are racialized. Toronto keeps booming, but not everyone benefits. A 2017 report by the United Way andUniversity of Toronto researchers reveals that while "Toronto is fast becoming a world leader in innovation and an example of thriving multiculturalism" it's growing prosperity also results in "a widening gap between the city's richest and poorest residents".

See "Table talk" for all facilitators notes on the drivers and change.

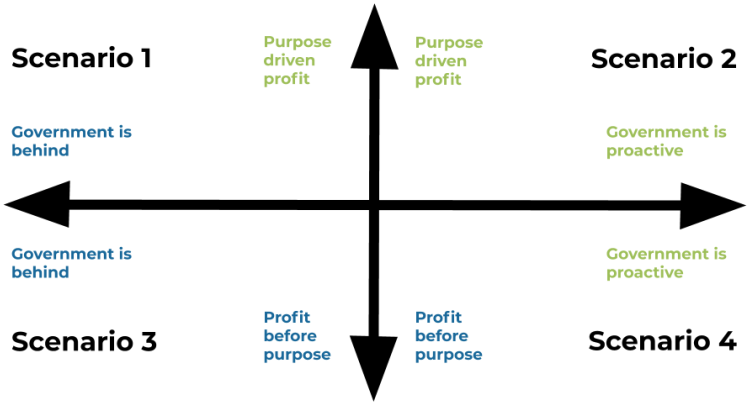
> The group was also very intrigued by this driver and noted that the uneven distribution of growth was a historical fact. They were interested in how specific groups were impacted more highly than others. Also, we talked about how growth might be redistributed to offer value in various ways so that the overall growth is more just and fair. They also expressed the importance of this driver. That ignoring could lead to a negative backlash from adversely affected groups.
> – Ana Matic, Group 3

The top two "What's driving microwork?"

The two drivers on the next page – **built for profit** and **policy lag** – were selected from the six microwork drivers as the most significant and most uncertain. Then we applied the opposite direction and a 2×2 matrix, we established the framework for the four Toronto 2030 scenarios.



Participants used driver cards and a simple arrow to aid discussion.



The 2x2 matrix derived from the driver discussion and voting.
Each group was given two drivers to inform their scenario.

Created by TukTuk Design
from Noun Project

5. Built for profit

Companies maximize profit by reducing costs.

Most businesses put efficiently maximizing profit over anything else. Companies maximize profit by reducing costs. One way to increase productivity and reduce costs is through automation. Outsourcing is another. Moving jobs to where the cost of doing business is lower can then increase profits. Companies also realize gains by taking advantage of labour's low cost and bargaining power in poorer countries. Furthermore, they can transfer capital costs to workers and bypass employment standards. On Mechanical Turk the median hourly wage is USD ~2 per hour, and only 4% of workers earn more than USD 7.25 per hour.

In 2012, Crowdflower (now Figure Eight) was sued over its labour practices. In 2015, CrowdFlower paid USD 585,507 to settle but the employment status of its workers was unanswered.

See "Table talk" for all facilitators notes on the drivers and change.

> The group expressed a great deal of certainty around this driver. They viewed it as representing a set of forces that are more fundamental than the other drivers. This driver was seen to be effectively *driving the others*. The expectations about profit in corporations were that it is something that few companies could resist if they were to remain competitive. The group viewed the previous drivers (1 and 2) primarily in this context. Ultimately, the "collaborative connections" and "intelligent advances" would be driven by profit motives.
> – Goran Matic, Group 4

6. Regulatory lag

Technological shifts have outpaced government policies.

Microtasking is under the radar in Ontario, and so unregulated. Technological shifts have outpaced government policies. As a result, platforms and requesters press their advantages, creating a buyers' market. Left unregulated, the potential ramifications are broad. The most obvious consideration is adherence to provincial employment standards. The impact also extends to the corporate tax base. Without adequate resources, local prosperity and community safety slide downward. Furthermore, as the social safety net erodes, the need for stable jobs and decent pay rises.

See "Table talk" for all facilitators notes on the drivers and change.

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> – Goran Matic, Group 4

Table talk: change drivers

The facilitators' notes on the discussion about drivers and change

1. Collaborative connections

Ana: Our group expressed that "collaborative connections" were an underutilized factor in current forms of microwork, and could potentially be an enabler for future scenarios. Especially pertinent were elements of collaboration that allowed microworkers to advance their collaborative skillset and capture or contribute their individual creativity. Mostly, our group felt that current formats disallowed true collaboration, and they were interested in it increasing it as a driver.

Alastair: This driver was effectively accepted as a given – therefore, important, but not particularly uncertain. So it wasn't a contender for our group's choice of two top drivers. However, there was bigger-picture discussion about the various ways that the combination of this driver and "build for-profit" [3] enable the disaggregation of task-level work from the bundles (i.e. "jobs") they've traditionally been delegated in. The observation was that this disaggregation potentially drives both efficiency and inequality.

Marco: My group looked at this driver differently. They viewed the notion of collaboration as a glue, bringing together their two most significant drivers, "policy lag and "unequal growth". Instead of looking at collaboration through the technical lens it represents, my group saw it as the only way for progress to be made. A perspective that came through strongly as we developed our scenario, The social impact franchise.

Goran: The group felt that this driver was important – although, not the one that was driving the changes. Instead, the group thought that this driver was more of an enabler of the fundamental underlying forces that are bringing about critical changes to the microwork landscape. As a facilitator, this discussion was both surprising and refreshing. The group expressed a shared belief that there were more fundamental forces (than technological enablement) that were more essential.

2. Intelligent advances

Ana: Our group was unified in their belief that "intelligent advances" are a strong possibility. Therefore we didn't discuss this driver extensively as there was a reasonably immediate consensus on this point. Notable was the idea that certain types of AI would be beneficial to some (and some types of markets), while disruptive to others (and other types of markets).

Alastair: AI wasn't a hot topic of discussion – potentially because even the most technical people at our table were primarily business- or policy-side folks. That may have led to either a sense of lack of expertise (which would make it difficult to discuss) or possibly a shared inclination to see it as highly significant, but not necessarily all that mutable. That did lead us to spend some time talking about how inexorable the technical future really was. But the discussion didn't stay top-of-mind for the group relative to the other drivers. The feeling around the table seemed to be that while robots will probably arrive, the important thing is what we do with them. And that dimension seemed more connected with other drivers.

Marco: AI was considered significant and certain, so the group didn't spend as much time on it. There was table consensus.

Goran: The group felt that this driver was more fundamental. The automation and AI were actually impacting peoples' jobs and livelihoods in a way that was aggregative and amplified. It was felt that this would make it necessary to create adoption strategies and active responses that are more pronounced over time. There was also some trepidation about the uncertainty of "intelligent advances". How exactly they might show up and manifest was noted but not discussed extensively.

3. Social modernization

Ana: The group was animated by this driver. We talked about the different ways of being and doing and what it might mean for "social modernization" over time. There was discussion about whether the changes are recurring and self-propagating. They were especially interested in recursive-pattern social shifts. The discussion extended to imagining normative changes to microworkers' lives. As microworkers become a larger group – and potentially even a majority – the group thought about shifts to values, perception about time, living habits (sleeping and eating), etc. We considered how this type of work might impact the family, technology, health, etc.

Alastair: Our table selected this as one of the two drivers we submitted. One big argument in favour was its role as a distal and deep cause of other changes. Because it wasn't as obvious how the future might look culturally, those in favour also suggested, its effects could be wide-ranging and unexpected.

Marco: Our group discussion centred on whether alternate ways of earning are real choices at all. Are they simply what many people have to resign themselves to? For example, the notion of the gig economy and its apparent lack of future work, career progression, and income security. We talked about whether "social modernization" as it related to microwork is a desire or a reality. Do people feel little control and that they must try to adapt to it?

Goran: The group felt that "social modernization" was in some way also impacted by the previous three drivers. People were seen as responding to the changes in their world and life environments. The underlying energy in this driver was seen as an attempt to situate oneself in this new work environment. To try to find a way to balance experience and social participation. The group expressed concern about positive outcomes given that the tensions being discussed were not easy ones to resolve.

4. Uneven Growth

Ana: The group was also very intrigued by this driver, and noted that the uneven distribution of growth was a historical fact. They were interested in how specific groups were impacted more highly than others. Also, we talked about how growth might be redistributed to offer value in various ways so that the overall growth is more just and fair. They also expressed the importance of this driver. That ignoring could lead to a negative backlash from adversely affected groups.

Alastair: "Uneven growth" was the other driver selected by our table. People gravitated towards it immediately, several expressing opinions along the lines that "something has to change," with growing inequality and unaffordability as likely to spark dramatic reforms or shifts. So it had appeal as another deep cause, one that potentially affected and motivated almost everything else we discussed.

Marco: This driver was considered significant, and there was generally a feeling that it is somewhat inevitable. But there was also a desire for change from the table. So there was interest in working on it to think about how it could be addressed.

Goran: The reflection on this driver was that it was more of an outcome than an active generating force. The group felt that the other drivers were effectively creating a change that was experienced as "uneven growth". The group agreed that it was best not to identify this particular driver as the critical uncertainty since it was more of a result of the interaction of the others.

5. Built for profit

Ana: Our group was divided on the “built for profit” driver. A large portion of our group felt that it might be impossible to change the direction of "business as usual". Yet, others were optimistic that it all had to change due to necessity. There was a recognition that new types of business models are emerging. Also, a feeling that large numbers of people are becoming change-making leaders (and therefore would spark even more change). The group felt strongly about this driver. They ultimately ended up changing each others' minds through dialogue. We settled on this being an ample space, full of possibility. That appealing to both do-gooders and 'the greedy' was the absolute best approach all around. By this, we were referring to models that allow for profit-driven ROI, yet also positive impact.

Alastair: "Built for profit" was a top selection. It triggered lively back-and-forth among table members. Some were optimistic about a perceived increase in public concern for corporate outcomes beyond profit, particularly in terms of a generational transition. Others were skeptical about the effects of social enterprise or cooperative-type efforts, given their relatively small prevalence.

Marco: There was consensus that this driver is significant but also certain. The for-profit model presents an ongoing problem for our table. It is viewed as contributing to income inequality; however, the general consensus was that "business as usual" was unlikely to change.

Goran: The group expressed a great deal of certainty around this driver. They viewed it as representing a set of forces that are more fundamental than the other drivers. This driver was seen to be effectively driving the others. The expectations about profit in corporations were that it is something that few companies could resist if they were to remain competitive. The group viewed the previous drivers (1 and 2) primarily in this context. Ultimately, the "collaborative connections" and "intelligent advances" would be driven by profit motives.

6. Regulatory lag

Ana: Our group was extremely engaged, knowledgeable and passionate about "regulatory lag". Some of our group members felt that policy could be doing a lot more to enable-allow-disallow certain types of action. They expressed a desire for the government to engage in a way that reflects current issues. Some people felt that policy lag is inevitable. There was discussion about how entrepreneurs and private corporations can move more quickly than the government. Because they are more nimble in their actions, they can act more immediately. We discussed the way these two approaches impact one another. Entrepreneurial ventures such as Uber have the potential to dis/en/able the status quo.

Marco: Similar to "unequal growth", this driver was viewed as significant. There was also a feeling that it is somewhat inevitable, but again, the group expressed a desire for change.

Alastair: There was quite a bit of initial interest in this driver from several people at the table, but others expressed a degree of exhaustion and ambivalence about discussion focused on regulatory regimes. The general sense was that while individual policies could certainly have dramatic effects, for good or ill, the fundamental question of whether and how government intervened in any technological area would depend on upstream factors. These were discussed as demographics, economics, institutional changes and culture.

Goran: The group felt that this particular driver was essential, and the other critical uncertainty. There was also some division about whether there is a policy lag. Some of the participants were aware of regulatory initiatives. Regardless, the group felt that this driver would significantly alter the microwork experience. Other drivers would show up differently based on policy developments. This extended to "built for profit" and the corporate motivations and mindset.

Phase 4: Implications of microwork futures

> Implications can future-proof your interventions, products, services, and experiences. In response to the microwork scenarios developed in our first workshop, we applied “What if?” questions to surface the implications.

What if? The implications process

> Science and fiction both begin with similar questions: What if? Why? How does it all work? But they focus on different areas of life on earth.
> – Margaret Atwood

1. First, workshop participants read and discussed their scenarios.
2. In workshop two, participants placed themselves in Toronto in 2030.
3. Using their scenario, they discussed "What else might be happening here?"
4. Then they asked, "What if this were true?"

The group discussion that took place during the second microwork session covered eight implications, which are documented below.

Implication 1. Democratic reform

What if political priorities and movements connected to microwork spur on democratic reform?

In scenario 3: the social impact franchise, the government is lagging behind microwork. As a result, democratic reform is a top issue. Then, smaller political parties (micro-parties) would emerge. Movements such as decent work might emerge and gain traction. Once these movements gain traction, people will come together. Because they'll want a proactive and responsive government.

The group discussed changing voting and elections systems. But in our scenario, there is frustration with the status quo. Workshop one participants all discussed the government and the fact that it's lagging behind on microwork. Also, they agreed that the decent work movement would gain traction in the scenarios.

By 2030, the decent work movement could extend into politics and government. Currently, Toronto has a Fair Wage Office and Fair Wage Policy. Because of the Fair Wage Office, the city can't do business with vendors who discriminate against workers. Also, initiatives like the Ranked Ballot Initiative of Toronto could gain ground. This initiative could extend to provincial and federal electoral reform.

Democratic reform arising from microwork futures was the most surprising implication.

Although microwork is non-standard employment many missed this implication. The group felt shifting from jobs to tasks will influence political priorities. Therefore new movements will emerge.

So parties addressing workforce issues connected to the fourth industrial revolution will likely win. They might also gain ground if they align with the Sustainable Development Goals (SDG). By 2030, SDG Goal 8 wants to provide full and productive employment and decent work for all.

One person cited Estonia's e-government as a model for smartphone democracy. Estonia provides 24/7 online access to 99% of its public services. In general, it's a model for e-government. Also discussed was Dave Meslin, who founded the Ranked Ballot Initiative of Toronto.

Group two considered this implication for strategic perspectives. Yet, they expressed a lot of uncertainty about how democratic reform might work. Although they believe that a "decent work caucus" is possible. More likely, parties would fold issues into their broader platform. So, one line of inquiry was about what kind of reform would catalyze micro-parties. Although the Netherlands was cited as a case in point. Despite no vote-share cutoff for party status, there are no parties that serve one class of worker.

Instead, group two's strategic conversation focused on political alignments, ideas, and institutions.

Generated by: The social impact franchise 2030 (Scenario 3)

Drivers: Government is behind + profit before purpose

Principal researcher: Marco Campana

Round 2: Alastair Cheng

Ranking (importance + surprise): 6+17=23

Implication 2. Tax collection

What if microwork transforms the tax system?

In scenario 2 (profitably public), microwork is commonplace. So the group's main microwork futures question was the following: "how is microwork income taxed?" In voting, this implication ranked the most important of all.

One of the issues grappled with throughout the project is delocalization. Microwork requesters are likely in a different country from the microworker. This matters. It matters because we have a long-established model. The government collects revenue for social welfare via taxes or employer contributions. The group could imagine a world where taxation has adapted to borderless work. But, they agreed that it's a radical remaking of the current model.

The group contended that microwork currently exists on the fringes of the tax system. The group operated under the assumption that people might not declare microwork income. Although this was not judgement. People acknowledged it that usually a small amount or they were compensated in "points."

Points compensation is difficult for workers to assess and the government to track. Tax assessment is a lot more difficult when points or other benefits are involved. Because it's a bartering economy that operates in the margins. Although barter transactions are within the purview of Canada's Income Tax Act, there are no systems available for assessing barters.

Cryptocurrencies, such as bitcoin, could also be an important role in compensation.

This further confounds the issue. The Canada Revenue Agency treats cryptocurrency as a commodity. So, it's not employment income (T4 or T4A). It is business income or a capital gain.

Microwork platforms have the power to shift profits to low-tax jurisdictions. This could trigger international tax competitions for platforms. Through uneven enforcement, some participants thought that government subsidizes microwork platforms. Furthermore, requesters have an outsourcing mindset. So they do not feel responsible for contributions or reporting.

The Mowat Centre report, Working Without a Net, explores the issue of taxation in detail. Across microwork actors, these concerns reveal an underlying set of tensions.

Ask yourself: Who's the boss?

Although a great Uber driver may make you feel like you are the boss, do you view yourself as their employer?

There are potential problems on all sides. Everyone from the requester and platform to the worker and consumer is affected by this. Because more people will be operating beyond government jurisdiction. Then, tax-free zones will be commonplace. As we automate back-office systems, taxation inefficiencies will abound.

Participants also expressed concern about efficient taxation.

Taxation raised concerns because it might place the reporting burden on microworkers, which creates an opportunity. According to the Canada Revenue Agency, digitization barriers are usually psychological and emotional. Although microworkers could speed things along. By helping citizens navigate tools via video or chat, they would help slower adopters. Then there would be no income tax returns. As one participant noted, it's already happening in Finland.

The next round for this implication went to Group four. Their scenario was one where tax collection mechanisms had adapted. This opened the black box on microworking. Yet, they acknowledged that policy formulation is challenging. Especially since the government does not have a full end-to-end view of microworkers.

The group discussed the challenges of formulating effective tax policy. They also expressed concern that microworkers are vulnerable. Two needs emerged from the discussion about policy and precarity. First, the need for more transparency. E.G: a centralized microworker registry. Second, they identified the need for incentives, which drive information collection. For instance, this could be portable health benefits.

The group also anticipated changes to tax collection approaches. They agreed that we need more flexible strategies for assessing tax responsibility. The group considered microwork factors such as income levels and platformization.

Drivers: Government is proactive + purpose-driven profit

Generated by: Profitably public (Scenario 2)

Principal researcher: Alastair Cheng

Round 2: Goran Matic

Ranking (importance + surprise): 11+10=21

Implication 3. Wicked problems

What if microwork helps solve food systems issues?

Food systems were a topic of discussion that came from scenario 2, profitably public. Participants with farming experience gave this extra prominence. Then a question emerged: “could microwork change world food production practices and pricing structures?”

In fact, it gained traction and was voted the most important and surprising. People felt that it could be a case study of how microwork might offer solutions to wicked problems. Ana Matic’s talk on aggregated action and microwork was a source of inspiration.

The group’s discussion in workshop one included microwork in Global South countries. This informed Alyx Lee’s persona, which includes elements of food tech. Besides micro-farming, Alyx helps farmers in the Global South by micro-consulting.

The group agreed that the trend towards different modes of agriculture is necessary. For example, large-scale insect farming. Although it’s not microwork-specific, eating bugs for dinner suggests a radical menu transformation.

Bugs aside, microworkers eat at home far more often than onsite workers. The group imagined community kitchen clusters, more food delivery, and other food concepts.

The group also felt that microwork-related food redistribution could help people in Toronto. Also, the availability of microwork as supplemental income could diversify micro-farmer incomes. A participant suggested that micro-nutritionist consults could improve health outcomes.

Overall, group one placed a strategic focus on lifestyle.

They saw the increase in delivery services as evidence of how fast lifestyles change. Microworkers are also likely to create a demand for new types of food. To meet the demand, there will be new (undiscovered) types of microwork in the food industry.

Participants saw continued growth in food-delivery and quick-and-localized everything. This includes growing bio-foods or cultured meat production. These ideas extended to localized cooperatives and distributed micro-farms.

Experience offerings extend to tracking the origin of each specific piece of food.

With more transparency, people will become more aware. Microwork could offer ways to correct food problems throughout the supply chain.

Additionally, the group discussed the impact on the processes behind food systems. They believe that labour market intelligence could alter the way we value time.

Also, the group identified market opportunities for microwork; managing, distributing, building, and growing food. They also considered how mechatronics could reduce food waste.

Participants visited the idea of water-waste. They considered the waste by-product of microwork technologies (e.g., server farms). This triggered the following question: “what if purpose-driven profit businesses also tackled our climate?”

The group saw that a non-standard workday (that is, not 9-5) would change the foodservice industry. Their emphasis on preparing for changes generated strategic perspectives on education and training.

Generated by: Profitably public (Scenario 2)

Drivers: Government is proactive + purpose-driven profit

Principal researcher: Alastair Cheng

Round 2: Ana Matic

Ranking (importance + surprise): 6+9=15

Implication 4. Upskilling

What if microwork disrupts education and training?

Scenario one (purpose-aimed conglomerates) tackles microwork issues related to training. The Skills Packs concept is woven throughout the scenario. This is a small task approach to training, offering upgrades-as-you-go.

Participants liked the idea of customizable, training options integrated with microworking. They acknowledged that AI can already learn how you learn. So why not offer up bite-sized micro-training over morning coffee? Human micro-teachers could provide five-minute interactive sessions.

The shift to micro-education renders learning as a commodity rather than a product or service. Tiny segments offered one at a time, and even better, gamified. This raised the question: "would formal education lag behind micro-forms of training?" With the quickening pace of micro-education, traditional education could face obsolescence.

Group two expanded on these considerations to generate strategic perspectives. Participants thought this would disrupt education. Broader courses of study would give way to focused snippets. Participants assumed that algorithms would match learning to a specific task. In fact, most of the matching would take place on the microwork platform.

Generated by: Purpose-aimed conglomerates (Scenario 1)

Drivers: Government is behind + purpose-driven profit

Principal researcher: Ana Matic

Round 2: Alastair Cheng

Ranking (importance + surprise): 5+3=8

Implication 5. Creativity

What if creativity is part of microwork?

The story of Wangari Maathai and the Green Belt Movement sparked hope. Scenario one (Purpose-aimed conglomerates) started a discussion about creativity, and ways to include it in microwork. When put to a vote it got a high rating for being surprising.

De-introducing boredom to elevate microwork had enormous potential. Participants agreed creativity leads to purpose, sensemaking and (self) identity. And creative life is possible. Generations of artists and other creatives have known only non-standard employment agreements. Union agreements protect artists, i.e., EQUITY, ACTRA, and Union des artistes.

Then, participants generated ideas about collectives. They discussed how shifts in power could help creativity flourish. To do this, feedback loops would need to go beyond rankings. New power structures could reset the dynamics of requesters and microworkers. Reflection and introspection become bona fide tasks. Participants believed in this competitive advantage and thought it was a compelling case for support. But they were unsure how the current system would reframe the rules.

Finally, the group discussed the opportunity for new types of workers. People add value to creative approaches that expand an organization's experience offering.

One idea was that by analyzing current data, we could track instances of creativity. Case in point: platforms are bringing together singers and musicians via their phone. A popular example is Smule, a popular music app that brings people together to sing.

Drivers: Government is behind + purpose-driven profit

Principal researcher: Ana Matic

Round 2: Ana Matic

Ranking (importance + surprise): 3+5=8

> We hold these truths to be self-evident; All people are born creative; Endowed by our Creator with the inalienable right and responsibility to express our creativity for the sake of ourselves and our world.
> – Barbara Marx Hubbard, futurist

Implication 6. The experience economy

What if the experience economy raises the profile of microwork?

Scenario 4 (Corporate cooperativism) features mega-corporations and AI. The group believed that humans could become "more human," and the demand for experience offerings would increase. All of the above are experiences best fulfilled by microworkers.

Then, the group discussed an interesting phenomenon. People prefer automated services. There are situations where people don't add value. E:G: a check-out process in grocery stores. One participant had not dealt with a cashier in over a year and preferred automated check-out.

A health study of mature adults discussed the preference for dealing with AI and automation-based technologies. Then the group discussed issues related to stigma and privacy, which they considered the most likely contributor to this preference. Yet efficiency fatigue may set in when AI is running the shop. The experience-based offer differentiates companies.

Therefore, including wellness-microworkers could add experience to product decision-making in real-time. Because microworkers could explain alternative options. They could also set up delivery or pick-up options for out-of-stock items. Customers might prefer automated check-outs but value a quick in-person interaction. Google can help, but a person can empathize.

The group expressed concern for the loss of entry-level jobs such as cashier. There is merit in proposing tasks where human participation adds value. Because microworkers could enhance, complement, or even mask, efficiency.

Generated by: Corporate cooperativism (Scenario 4)

Drivers: Government is proactive + profit before purpose

Principal researcher: Goran Matic

Round 2: Goran Matic

Ranking (importance + surprise): 4+4=8

Implication 7. Learning to microwork

What if educational institutions more intentionally prepare people for microwork?

Post-secondary institutions focus on knowledge, but they're expensive and take a lot of time. In scenario 3 (the social impact franchise), learning syncs to needs in real-time. The scenario offers ways to offer training in non-standard employment future. This ranked as important during voting, but not at all surprising.

In fact, a participant summarized the way employment programs work:

- Businesses have long-standing relationships with education and training partners.
- This includes both educational institutions and not-for-profit service providers.
- Corporations support the training and skills development they define as necessary.
- Partners funnel workers to employers, based on employer-specific and identified needs.

Micro-learning and micro-upskilling could upend the system. In scenario 3, the government will maintain an outdated system for workforce training. Furthermore, the group advocated for flexible models for educating children and adolescents (K-12).

This will prepare young people for a future where non-standard work is the norm. However, there's already a lot of traction. Educators recognize the need to support attributes such as adaptability, and resilience. Skills acquisition and "learning how to learn" are necessary for this microwork future.

The group discussed the increasing emphasis on efficiency. This is partly to do with content. But training will become easier to develop and provide at scale. Learner incentives also merit attention. Especially if corporations lead the workforce training agenda. With fewer intermediating institutions, more people could get relevant credentials.

The group also cautioned against the narrowing of education to fit workforce needs. Long-term workforce planning requires systems support. Narrow training could also reduce the portability of a worker's skills. The system fails people if they are only learning how to use a proprietary interface.

Generated by: The social impact franchise 2030 (Scenario 3)

Drivers: Government is behind + profit before purpose

Principal researcher: Marco Campana

Round 2: Marco Campana

Ranking (importance + surprise): 8+0=8

Implication 8. Automation

What if microwork shapes AI development?

In scenario 2 (profitably public), reforms take personal data out of private hands. First, the group discussed data, a key part of the microwork futures conversation. Then acknowledged that it's one of the three pillars of AI. The other two are processing power and algorithmic capacity. When we voted, this was the weakest implication of all eight top implications.

The group questioned whether the microwork frontier keeps moving. If AI gets good enough to capture data without human intervention, microwork could become obsolete. Yet, participants acknowledged an inextricable connection between automation and microwork.

Which is it?

Microwork needs AI to work, and AI is a component of microwork.

The bifurcation of the digital labour market is societal. We view microwork as "disposable." Yet talent is "invaluable." This extends to how we talk about work. While we manage talent, we rate tasks. We rate microworkers, along with Uber drivers and Airbnb hosts.

So, if microwork is taskification, is AI the talent or a super-microworker? "Managing AI" is what we say. Or is AI the slave? Note that "slave" is a word that's used in computing. Technology terms apply to microworkers and values-based statements apply to technology.

Overall, the group's microwork futures discussion centred on data, taskification, and evaluation. So there are pitfalls with evaluation. Optimizing for short-term task clearance is problematic. The group felt that less tangible indicators fail the institution and the microworker.

It could also limit the potential for computing. One participant noted that extreme taskification could help AI perform management functions. So they viewed this as a technology opportunity.

When we encounter angst about how AI is "taking over" we base it on the idea that AI is shaping the way we live our lives. But microwork is a human (intelligence) task. So, the general consensus is that it's up to humans to shape AI development.

Generated by: Profitably public (Scenario 2)

Drivers: Government is proactive + purpose-driven profit

Principal researcher: Alastair Cheng

Round 2: Marco Campana

Ranking (importance + surprise): 6+1=7

Strategic perspectives

> Strategic perspectives are ways to think about the future. They are the final output of the foresight method used for this project and are included in the e-book. The project surfaced five areas to consider: artificial intelligence, education and training, livelihoods and wellbeing, and platforms. See Chapter 4.

scenarios

TORONTO 2030:

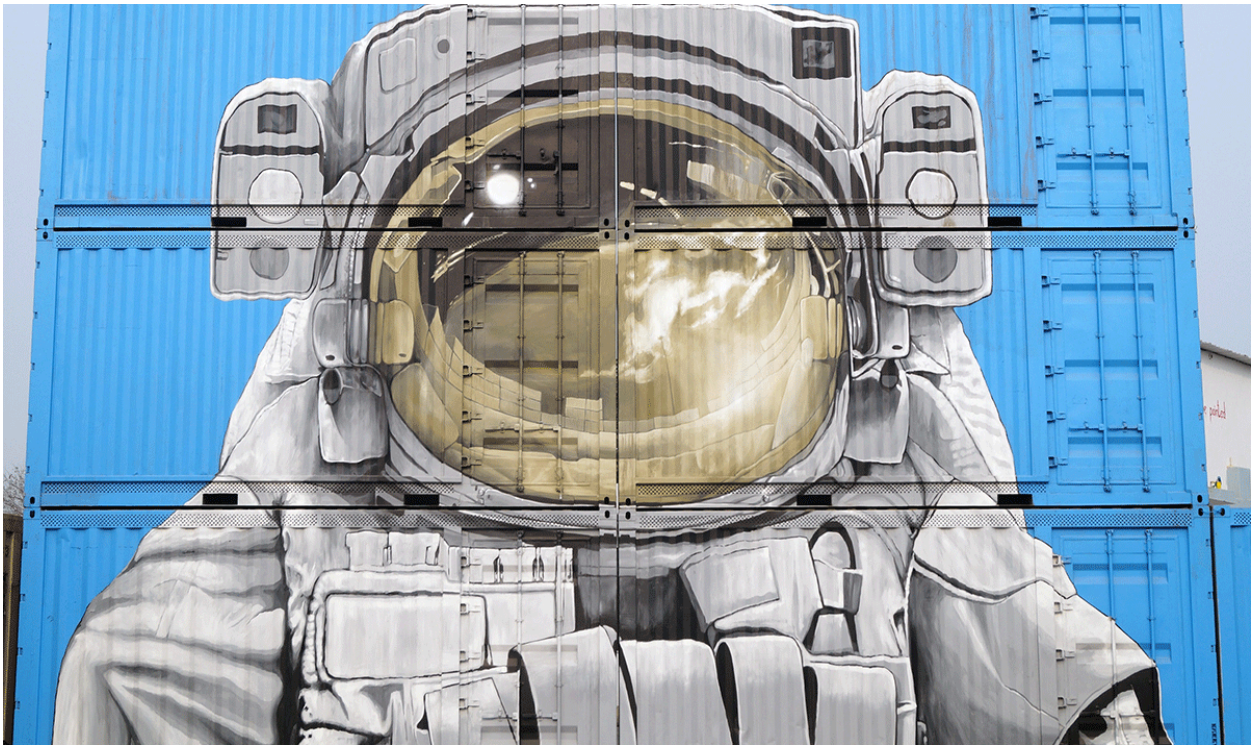
TALES OF POLICY AND PROFIT

Scenario 1: Corporate Cooperativism

Scenario 2: Profitably Public

Scenario 3: The Social Impact Franchise

Scenario 4: Purpose-driven Conglomerates



Scenario 1: Purpose-driven Conglomerates

> Corporations now have a purpose-driven profit business model. In this scenario, microwork platforms offer Skills Packs training upgrades. Meanwhile, governments organize drone water-flights to attack forest fires across the globe. And it's not unusual to see a microwork hub in a repurposed shipping container hub celebrating Blue Origin.

Government is behind + purpose-driven profit

Scenario 1, Purpose-driven Conglomerates, was developed at the microworking session held on December 10, 2019. The related persona is Robin Esposito.

Note: SamaKar is a fictitious organization. Samasource, a microwork platform intentionally designed for measurable poverty reduction is its inspiration. References support the plausibility of the scenario. There is no connection between Samasource and TWIG's microtasking project.

Purpose-driven action to remain competitive

Government policy hasn't kept up with the demands of the cumulative shifts happening worldwide. Economic changes, corporate growth and environmental bursts triggered several alarming market swings. To remain competitive in an unpredictable market, corporations have shifted towards purpose-driven action. To allow for long-term impact, leaders recognize the need for a different approach.

Above all, three AI/M conglomerates are dominating the gig-market

All in all, the leading provider is the Global Microwork Exchange (GMX). Their headquarters are in San Francisco. Also, they have Toronto and Montreal satellite hubs, and work in 17 countries, on all continents. They have over 12,000 active daily workers in Canada and the US. Currently, GMX provides a large variety of AI and microwork services to Fortune 50 companies and impact clients alike.

In 2019, Samasource raised $14.8 M, and GMX raised 14.83 million USD. Then, GMX raised an additional 314.4 million in 2024. This large amount was attributed to their amalgamation and the high value of the mission. Also, this was the first time an Artificial Intelligence/Microwork (AI/M) corporation had a purpose-driven mission that was profitable for investors. As of 2030, GMX is a billion-dollar company, with impact projects globally.

SamaKar's expanded network coverage and amalgamation with seven of their competitors triggered GMX's creation. Largely, they did this to pool resources, and create bigger impact possibilities. Originally they were a not-for-profit. However, they have been a for-profit business (aka social purpose organization) since 2019.

Today, GMX is a key example of large conglomerate AI/M companies, which are a growing trend

In Toronto, we can see the difference. Because policymakers are beginning to work with the AI/M organization on sharing their missions and requesting project outputs. There is no precedent for this yet, and the government is approaching the possibilities with caution. Small government-based undertakings in AI, data, research, and CX are beginning to occur.

Microwork is an opportunity-filled space

In 2030, microwork is an opportunity-filled space where underemployed workers can earn a living wage. Torontonians earn a monthly average of $2,194.19, with flexible project schedules that allow for life's complexities. Some even choose not to get paid, donating their wages to distributed workers on the global team. This is especially good since the GTA has seen a large influx of refugees over the past decade. Presently, the real numbers are unclear. Yet, it's estimated that over 70% of new Torontonians have participated in some kind of AI/M work this year alone.

AI/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 AI/M organizations are tackling some of the world's most pressing problems with global approaches that break down geopolitical boundaries.

Workers say that it's because the skills are approachable. Microwork organizations offer free, digital Skills Packs training upgrades. These upgrades are completed in tiny increments. You can join a project that requires you to have some tacit knowledge by upgrading your skills. Because the Skills Packs are digital and downloadable.

When they upgrade, Skills Packs graduates can enter a new workspace. Typically, workers switch between simple tasks, AI, data, research, and CX. When they contribute they can advance over time, and progress to more interesting projects. Work collected during training goes to paying clients and subsidizes their training further.

Purpose-driven gamification

The most interesting aspect is the increase in technology and its gamification features. AI/M organizations are providing top-notch infrastructure to workers. This includes fast and free internet connections, regardless of location. Container workspace hubs provide free tech terminals on a first-come-first-served basis. The workspace hubs are container buildings with super high-speed connectivity, available 24/7. These are like Internet cafes in the 2010s – but with a microwork purpose.

Overall, Ultra Skills Packs training upgrades come with free tech – delivered by Amazon

The really big Ultra Skills Packs training upgrades garner new technology, delivered next day by Amazon. Those who pass challenging upgrades have a new “tech-toy” in the morning.

Now, mid-to-advanced microtask projects look more like fun puzzle games, and less like work. The new AI/M game-play is enticing. Once they get past the initial learning curve, some people are just playing these projects for fun. Workers/Players (W/Ps) feel a sense of alignment and community with company missions, and want to lend a helping hand. If they choose to do, they can work on a project in the global sphere, or in their own backyard.

Drone fire-fights 2030

Toronto 2030

In 2030, Toronto's AI/M_TO initiative helped solve the city's decades' long debate about transit. This made the GTA a major GMX hub. The AIM_TO conference showcases the AI/M_TO initiative's success. The venue is Toronto's waterfront arena, and attendance is free. Because attendees have to complete only five small segments of work to access their ticket.

GMX 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.

Experimental projects tackle otherwise impossible challenges. However, competition is fierce. Currently, ultra-microworkers are vying for position on these projects. In order to be fair, the final team is chosen by a lottery.

Critical events

2020-2030: Purpose-driven conglomerates

To develop the scenario, the group established critical events. If government policies and regulations fall behind and corporations move in the direction of purpose-driven profit, these events might actually happen.

- Co-working spaces increase in use. In fact, it's ubiquitous for non-standard employment.
- An increasing number of people augment their salary with microwork and gig income. This challenges the designation of non-standard employment.
- SamaKar goes from a not-for-profit to a for-profit model. This secures a $1.83M USD investment.
- SamaKar and KarmaSchool amalgamate with seven other microwork and AI competitors. Consequently, this forms a super pack called the Global Microwork Exchange LLC. Collectively, they pool their network and resources. Meanwhile, the reach and impact increase.
- Fortune 500 organizations and emergent organizations that use new forms of AI and supply chain infrastructures are a crucial source of revenue.

When this happens, what communities exist and what happens to the government?

- Governments are over-tasked and under-funded due to environmental challenges, financial downturns, and misuse of technology (due to quickly shifting systems). Trepidation and unanticipated social costs trigger a breakdown of speed and action. I.E: a lack of alignment with policies.
- Because of growing tensions and conflicting interests, backlashes happen between lobbying groups. Various advocacy groups spring up.
- Reduced AI dependability on Human Intelligence Task (HIT) processing. All of a sudden, microwork is 'macro' in nature, and AI takes over simpler jobs.
- GMX releases the first Skills Packs training upgrades. Then, their competitors copy it.
- An African AI/M releases **microwork hubs in repurposed shipping containers.** Consequently, competitors produce copies of these hubs.
- AI/M_TO releases Urban TO Skills Packs training upgrades. Suddenly, microworkers can onboard topical knowledge about Toronto-based projects. After that, other city packs follow.
- The first AI/M_TO Conference is held. In less than an hour, tickets sell out. Following its success, meetup groups happen on a monthly basis. At this point, there are meetup groups at every hub capital.
- AI/M's begin to address growing social needs, as initial project pilots. Although some fail miserably, others are successful.
- Suddenly, social video adverts spring up as popular media. These adverts feature water-drone activity in forest fires. Globally, these drones are manned by thousands of people.

Astronaut graffiti on semi-Trailers by Pixabay from Pexels
Drone water fights by skeeze from Pixabay

Persona 1: Robin Esposito

> Robin is a microworker with one of “the good guys”.
>
> The scenario, Purpose-built Conglomerates, represents a plausible future where microwork provides opportunities for advancement.

Government is behind + purpose-driven profit

Note: SamaKar is a fictitious organization. Samasource, a microwork platform intentionally designed for measurable poverty reduction is its inspiration. References support the plausibility of the scenario. There is no connection between Samasource and TWIG's microtasking project.

Scenario 1 was developed at the microworking session held on December 10, 2019. The related narrative, Purpose-driven Conglomerates, describes Toronto in 2030.

There is only so much fake cheese a human can eat

Robin Esposito sat at her kitchen table and stared out the window, sipping her third coffee of the day. 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. Even with corporate impact dollars, this internet problem persisted. Then there were the power outages that went with it due to the rolling fires.

She had been working long hours to save for a generator, but Robin and her son Darin were getting sick of Mac n' Cheese. There is only so much fake cheese a human can eat!

Still, Robin reminded herself that it would all be worthwhile

Worth the sacrifice! After all, she was a microworker with one of "the good guys". A small shop in comparison to the rest, but still a global agency with great reach, and better scaling potential. SamaKar had been an early adopter in the microwork business. It already included over 12,000 workers. Robin was proud to contribute to social impact projects in over 17 countries.

The agency had remained true to its purpose and blazed a path of positive impact that inspired others. She was proud to call this org her home base. Even though microtasking was simple and lonely, it was great to be part of something purpose-driven. It not only paid the bills but provided the ability for advancement. And she was part of positive changes in the world.

For Robin, it was hard work and tough going

It was especially tough to feel the ever-present pressure. The guttural fear of flying without a safety net, hurtling through each day with no end in sight was with her always. She sought safety, and her bed, and Mac n' Cheese again, on the other end.

All it would take is for one of them to get ill or for a serious injury to occur. Some ridiculous twist of fate (like her father's faulty aorta) could throw them off course. Dad's illness had forced her to drop out of high school. At this point, she was six credits shy of a diploma.

She had to try and scrape together enough money to get private treatment before the healthcare wait-list ran out of time. Although she tried her best and found a local job that paid overtime. Their church community organized bake sale fundraisers and donated online giving pages. But in the end, it had all been too quick, and the money hadn't even been enough to cover the majority of funeral costs. She'd been lucky to have found this gig instead, with flexibility, and room for growth.

It felt good to focus on improvement. *Sigh.* The wheel was still spinning. She looked out the window at the beautiful woods of her childhood, in her small, rural, northern Ontario town. Then, she sipped her coffee again. A red cardinal flew a majestic arc over her yard. They would have to do something about this connection speed.

Scenario 1: Contributors

This scenario was written by Ana Matic. It was developed at the Microwork Drivers Workshop on December 10, 2019. It's based on the contributions of the following people. *With thanks.*

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Scenario 2: Profitably Public

> In the Profitably Public scenario, the government is proactive while corporations compete for social reputation. Rising global tensions built consensus for sweeping, conscientiously capitalist reforms. Corporate tax hikes support measures like greater privacy protections, which in turn unlock personal data's full commercial value. New social tech and norms boost ethical consumption. And all these forces are reshaping Toronto. Changes are visible everywhere, from ag-tech complexes to hallucinatory popup nightspots — if you can afford the social impact offsets to get in.

Government is proactive + purpose-driven profit

Scenario 2 was developed at the microworking session held on December 10, 2019. The related persona is Alyx Lee.

"Your capitalism's not working? Have you tried resetting it?"

The world is swimming in data — or maybe drowning.

AI accelerates advances. It supports increasingly complex systems, from social networks to population biomonitors and satellite clusters. But these technologies also concentrate on control, raising social inequality and tensions. Overlapping national and corporate interests jockey for global influence. They cooperate on problems like climate change one minute, then trade cyberattacks the next. Local extremists feed on global tensions.

These dynamics played out in the last decade's interlocking crises. Ageing populations and new pandemics strained public medical systems. Falling pension contributions and tax avoidance weakened social safety nets. Precarious workers regularly fell right through.

Unchecked markets hardly seemed an attractive alternative, though. Monopolies tightened and wages stagnated. It was also a decade of dramatic data breaches and abuses. Anxiety rose over digital annexation, whether by Silicon Valley or Beijing.

A mandate to upgrade government

All this left Canadians increasingly willing to take political chances. Hope grew that a more conscientious capitalism could deliver humane innovation. But this required government smart enough to keep citizens informed and empowered.

Consensus grew across parties and levels of government that serious investment was necessary to update public institutions for the algorithmic age. Ideas like "data sovereignty," "privacy as a utility" and "digital social democracy" shaped public agendas.

Governments bargained hard with scandal-weakened corporations for access to Canadian markets. But they also worked to ease costs, by making digital markets far more efficient.

The resulting experiments are reshaping Toronto's civic, economic and social life. And all these changes are on vivid display in booming microwork markets.

Deals for dollars & data

Legislators redesigned social programs for a world where most people have several employers. Hourly contribution and entitlement requirements softened, making company staffing more flexible. Widespread HR and accounting automation have lightened any regulatory burden. But citizens also have easier access to benefits.

All this depended on new revenues, supported by international reforms. These helped more fairly identify and tax corporate revenues, preventing profit sheltering. Streamlined CRA filing and a Canadian e-currency launch have simultaneously lowered everyone's transaction costs. And all this has helped keep tax rates down, by increasing collection efficiency.

Similar compromises allowed ambitious data governance reforms. These took sensitive details about Canadians out of private hands. But the resulting data pools also provided significant social and economic value.

Governments have unified management of citizens' medical, tax and demographic data. The gains here go beyond internal efficiency gains. Easy access to data has increasingly become a public service. Microworkers, for instance, can request digital verification to a 3rd-party of their identity, medical or police records.

Projects like Sidewalk Labs' Quayside development likewise spurred greater attention to citizen information. Canadian governments worked with companies like Element AI and ThinkData to pioneer new approaches. Then increasingly, privacy laws mandated using independent data trusts to protect sensitive personal information.

Making a market for morality

Policymakers also pushed for more transparency about companies' social and ecological impact.

This model developed out of already widespread, evidence-based impact standards. These ranged from carbon accounting to public benefit corporate legislation and certification. Such measures also mandated availability of significant details on worker conditions, pay and demographics.

Many companies were already collecting such data for internal or insurance analysis, which smoothed transition. Now they just had to audit and publish it, in proportion to their Canadian business.

Such information let people compare major companies' actual impact, not just branding. This helped take social impact from consumer niche to mainstream business priority. It now significantly affects consumer choice.

That's partly due to urgent concerns like climate change. Yet it's also boosted by new shopping analytics services. These filter and sort purchase options in real-time, by personal priorities. Pulling now-available impact data from a product's whole supply chain, they make "the right thing" clear. So customers do it more.

Such tools also help people track their own total impact. Services then combine such consumption and financial records with sources like home and transport data. The result are blended personal "moralytics" scores. These are everywhere now. Spread through social sharing and gamification, promised insight into people's true selves drives integration with dating apps and other services.

This positive social feedback loop drives further ethical consumption and disclosure. It's also spawned many new offsetting services. So even conventional companies now compete on purpose-based metrics, to improve profits.

That's partly because corporate reputation has only become more important when competing for idealistic young talent. All of which means even the most hard-nosed investors increasingly factor social impact into their decisions.

Earning a micro-living in 2030 Toronto

Together, all these developments have fostered not just more microwork opportunities but far more profitable ones. And this has fuelled a remarkable Toronto boom.

Conventional employers are certainly crowdsourcing more jobs. But Canadian digital workers also command premiums for their accurate, micro-targetable qualifications. Marketers have also built on longstanding practice by assembling test panels of Canadian consumers to match any target demographic. And demand is rising for higher-skill micro-labour. Experts from plumbers to dermatologists offer remote consultations via new platforms.

New privacy protections also let individuals control and profit passively from their own information. Personal data streams are increasingly detailed and useful. And combined with tough privacy laws, this encourages organizations and businesses to offer direct payment for access.

But citizen trusts also increasingly control massive pools of value, from genomic and facial recognition data to personal social graphs. Members can then opt into uses they approve. Options range from public-interest research participation to (paid) studies and ad targeting. Combined, passive personal and group data licensing gives citizens a basic (market) income.

Many combine microwork's flexibility with care, community and cultural work. Workers can plan better, and proliferating platforms drive competition for labour. Given reduced policy incentives for worker misclassification, platforms also foster more worker coordination. This increases both effectiveness and work satisfaction.

Microwork is now commonplace in mainstream media and culture. As ever more jobs turned into gigs, popular awareness and sympathy grew. All of which helped secure legislative protections.

TO residents have also founded several successful microwork platform startups. Skilled, specialized and secure micro-labour has likewise helped sustain the city's broader AI cluster.

Such shifts have also reshaped the city's human geography. Toronto supports an extensive system of shared workspaces, for instance. And transportation systems are far less strained.

Absolute economic disparities are even greater than in 2020. But digital workers can favour factors like housing cost over workplace accessibility. Virtual commutes also make it much easier for lower-income residents to resettle in more affordable communities. This has eased pressures by reducing population flows into Toronto. They're sometimes even reversing, helping revitalize smaller Ontario communities.

Critical events

2020-2030: Profitably Public

To develop the profitably public-focused scenario, the group established the critical events that might take place should the government take a proactive role, and corporations reverse direction to purpose-driven profit.

- 2020: Anonymous dump of the Midtown Memos, records stolen from a white-shoe NYC firm. Partners there discreetly helped tech giants bury scandals, skirt regulation and "minimize" taxes. Most suspect foreign state hackers, but they're never identified.
- 2021: Launch of global transmedia phenomenon *Strange Company*, Brazil's first "ultranovela." It combines dozens of reality-style narrative feeds with an alternate reality game. The public joins in by completing tasks on a cryptic microwork platform.
- 2021: A ProPublica/Australian Broadcast Corporation investigation reveals funding of China's Uighur detention camps with forced micro labour. Such digital abuses soon explicitly added to Canada's *Modern Slavery Act*.
- 2021: Midtown Memos revelations fuel OECD-wide reforms to tax corporate revenues more effectively.
- 2022: Minneapolis serial killer's arrest leads to public panic over Orthodoxx. This dark-web service allows the simple search (and purchase) of detailed personal information. Details for millions came from combining and deanonymizing legal data brokerage offerings.

What events trigger this change?

- 2023: Outbreak of the virulent H7N13 flu pandemic. This pushes many strained health systems to break. Also, it reminds survivors how much collective action can matter.
- 2025: Passage of Canada's omnibus federal *Data Sovereignty and Protection Act.* It includes major provisions for business impact transparency.
- 2027: Announcement of sustained over-benchmark returns for Human Ventures, a major impact-oriented fund. Investors range from OMERS to Jeff Skoll.
- 2028: *Nature* publishes the first major findings from Canada's Public Pool genomic data trust. Commercial applications promise significant licensing returns for trust participants.
- 2029: Toronto success story Klutch closes their buzzy Series C funding round. The startup built a marketplace for taste, offering AI-powered polling of people like the ones users most want to impress.

Persona 2: Alyx Lee

> Thanks to data royalties and a solid bioreactor gig, Alyx can live well and set something aside for the next flu or market shock.

Government is proactive + purpose-driven profit

Scenario 2 was developed at the microworking session held on December 10, 2019. The related narrative, Profitably Public, describes Toronto in 2030.

Mom was right: there's solid money in synthetic agriculture

It was a long shift. With the new bioreactors still calibrating, outputs weren't quite right. There was something off with the texture…

After all that, Alyx set their devices for minimal distraction right through the PATH. No need to let smoothie and *kluay tod* * offers get in the way of dinner at home with the family.

A fairly empty train left Alyx room to sprawl comfortably. So curiosity set in about a whitelisted ad-test ask. It arrived a few hours back, but was still available. Obviously a tight targeting fit.

The video for a new CleanCuts cultured chicken breast doesn't take long. Cute kids play tag in a reclaimed poultry house. It's now all creepers and quick-growth interior mosses. Closing flicker promises sweet offset numbers against farmed meat. It's a good spot, and Alyx's smile isn't forced.

That would probably be pointless anyway. CleanCuts' values match and privacy ranking are high. So they'll be getting video, haptics & heart rate from the view. Plus any relevant purchases in the few weeks. Satisfying way to earn a few bucks.

***

Alyx arrived in Canada young. So Toronto dominates their early memories. Childhood near a small community garden left them passionate about plants. And Alyx really still believes that saving the world will take fixing food.

At least, that's one of the things it'll take. Mom was right: there's solid money in synthetic agriculture.

That led to a double major in Agronomy and Biochemistry. Then a year of placements on small, southern Ontario farms to give Alyx some time working real dirt. Then it was back home, helping scale up TO's food production.

Their main gig is minding a reactor sector on the York Biosystems subfloors. This means working with nutrient startups, and a lot of gene-hacked yeast. But not much sun.

Luckily, the city's demand for heirloom greens is bottomless. This leaves plenty of reason to spend time in the co-op greenhouse atop Alyx's apartment block. That's good for a share in profits, plus salad.

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.

Along with data royalties, this all lets Alyx live pretty well. Even setting some money aside for the next flu or market shock.

***

The rest of the ride slips past with a recap of big *Strange Company* news. Then some flipping between favourite character threads.

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.

That should keep last month's footprint cut streak going, too...which'll make for an even better look when they post pics.

The evening's turning up.

** Fried banana*

Scenario 2: Contributors

This scenario was written by Alastair Cheng. It was developed based on the contributions of the following people at the Microwork Drivers Workshop held December 10, 2019.

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Photo used to represent Alyx by Alekzan Powell on Unsplash
Sneakers and bike wheel by Marcelo Franchi on Unsplash

Scenario 3: The Social Impact Franchise

> In this scenario, the consequences of the gig economy are laid bare. Due to a lack of ridership revenue, infrastructure such as public transit collapses. Microwork enters industries such as education, health, and social services.

Government is behind + profit before purpose

Scenario 3, The Social Impact Franchise, was developed at the microworking session held on December 10, 2019. The related persona is Vasil Ramadani.

Note: Samakar is a fictitious organization. Samasource, a microwork platform designed for poverty reduction, is its inspiration. References are provided to support the plausibility of the scenario. There is no connection between Samasource and TWIG's microtasking project.

There is little progress by 2030

To paraphrase Edward Snowden, the law always lags behind technological innovation by at least a generation. Amazon's Mechanical Turk started in 2005. By 2030 microwork has been around for almost a generation.

Finally, all levels of government are getting a handle on the impact of microwork. However, for too many Torontonians, it isn't fast enough. The Canadian Minister of Labour is tasked with developing "greater labour protections for people who work through digital platforms, whose status is not covered by provincial or federal laws". By 2030, there is little progress.

Human Resources firm, Randstad Canada, claimed that, by 2025, "the future of the workplace is agile."

Regrettably, by 2025 agile translated into precarious for the average worker

Global corporations dominate microwork platforms and set the agenda. With little oversight, microwork enters industries such as education, health, and social services.

Unions focused on the gig economy, but not the precarious microwork underbelly. The Professional Institute of the Public Service of Canada's (PIPSC) membership rejected a proposal to "organize professionals doing gig work in the private sector."

The efforts that exist focus on highly skilled and specialized knowledge workers:

- UNIFOR's Canadian Freelance Union
- CEP's Canadian Freelance Union
- The Canadian Media Guild Freelance Branch
- Urban Worker Project

Due to limited resources, the decent work movement can't deal with digital worker precarity.

The social impact franchise: Samakar

The emerging organized worker model doesn't focus on microworkers, the most precarious gig workers. Lower-skilled workers can't break into higher-paying jobs; no resources or solutions are available to address this issue.

In 2019 social impact franchise, SamaKar opened a Research and Development hub in Montreal. "Sama" is a Sanskrit word, meaning equal. "Karman" is Sanskrit for work. SamaKar runs as a hybrid model. A nonprofit owns the majority of the shares in the for-profit company, which raises capital from investors.

SamaKar also runs KarmaSchool and 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. It also shows freelancers how to thrive in it. Their work creates humane and fair work conditions for microworkers.

Samakar's move into Canada is small and unnoticed, but not for long. In the early 2020s, all levels of government welcome big tech companies.

City infrastructure is privatized, touting the new smart, livable city. Surveillance capitalism by design is the norm. By 2025 an already unaffordable city has become unlivable for many:

- Those who can move to smaller communities.
- Those who remain live where they work.

This creates consequences. Public transit use is at an all-time low. Fewer people are driving to work. This has a net positive environmental impact, but public transit collapses due to a lack of ridership revenue.

There is increased workforce accessibility for some people

Through microwork, people with disabilities, older residents, youth, newcomers, and racialized communities gain labour market access. But they lack social capital and inclusion. They also have no access to stable career pathways. Precarity is the common bond that connects most workers. They feel isolated and disconnected from their city and each other.

Many realize that the microwork labour market is part of the problem. Industry demands acquiesce government institutions. Outdated and underfunded social services grapple with a profit-first mindset.

Either way, they are unable to patch the social safety net. The system has bottomed out, creating precarity for the vast majority of residents.

For some, barter economies emerge. Housing remains unaffordable. But there is a major shift toward a rental market built on co-operative housing models.

Toronto 2030

One year after the social impact franchise, Samakar opens

Torontonians are looking beyond mainstream institutions. They want a new culture, leaders, and a new social system. The decent work movement in Toronto is gaining ground.

Torontonians begin to realize that SamaKart is a valuable ally. Some are sceptical of solutions from business, but there is a need for businesses and people are looking for new models.

Working with Beyond Jobs out of the UK, SamaKar franchises its model into Toronto. SamaKarTO opens in 2029, aligned closely with the local decent work movement. It has the backing of SamaKar's corporate partners and clients.

- KarmaSchoolToronto partners with communities, existing organizations, and organizations to support precarious microworkers directly.
- Subsidiary KarmaNorth handles the microwork platform. It brings Toronto, Canadian, and international companies on board to hire microworkers in Toronto.

In the absence of policy, the Canadian Ministry of Labour sets up funding

Then, they run pilot projects aimed at supporting microworkers. Private philanthropy also steps up. They have little impact.

By 2030, SamaKarTO represents a diversity of industries and sectors supporting microworkers and others in the gig economy. This base started with SamaKar corporate clients who are 50% of the Fortune 50. Then it quickly expanded into more Toronto-based employers.

It also works with local for-benefit corporations with a social purpose, including impact investors. This social impact franchise has grown and mobilized as a response to globalized for-profit corporate dominance.

SamaKarTO's resources come from services provided to corporations and employers that use SamaKarTO's services. Through its built-in Toronto solutions, the city's microwork precariat is moving out of poverty.

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.

SamaKarTO moves SamaKar's policy agenda forward. It supports local government and creates a livable city with decent work policies and protections.

Critical events

2020-2030: The social impact franchise

To develop the scenario, the group established critical events that might take place if government policies and regulations fall behind, and corporations continue to move in the direction of profit before purpose.

- 75% of Torontonians became precariously employed or unemployed.
- Government has become the biggest user of microworkers. Privatization of social services has begun.
- There is an increase in large global corporation dominated labour outsourcing.
- Increase in social isolation; more and more people work from home through portals.
- Sidewalk Toronto and projects like it are everywhere. I.E: the privatization of city infrastructure and services.
- A shift happens. People realize that the emerging microwork labour market is a disaster and they have more in common with each other than they thought.
- Government institutions collapse and are co-opted. They complement industry trends. Human/social services can't patch the social safety net. This bottoms out precarity for the vast majority of residents. A revolution of values occurs.
- The local Decent Work movement gains prominence.
- New leaders, a new social system, and a new culture emerge, based on what was considered fringe approaches just 10 years earlier.
- Models such as SamaSource and Beyond Jobs expand into Toronto. They work with decent work advocates, activists, and academics. They also bring a globally responsible social impact franchise model to Toronto.

Persona 3: Vasil Ramadani

> Vasil is a social entrepreneur who is happy about the impact of his work and hopeful for a better world.

Government is behind + profit before purpose

Scenario 3 was developed at the microworking session held on December 10, 2019. The related narrative, The Social Impact Franchise, describes Toronto in 2030.

Note: Samakar is a fictitious organization. Samasource, a microwork platform designed for poverty reduction, is its inspiration. References are provided to support the plausibility of the scenario. There is no connection between Samasource and TWIG's microtasking project.

Vasil wakes up every day feeling good

Vasil Ramadani is connected to a global network of people who think and work like him. So he's happy about the impact his work is having on his community. He's also hopeful for a world that can be better for the vulnerable and that there are pathways out of poverty.

Each day is an opportunity to move someone out of poverty. He has a passion for social responsibility in business. That makes running a social impact enterprise is an opportunity for him to make the world a bit better. It's also a chance for him to satisfy high tech, start-up, corporate, and government client needs. Just like his Montreal colleagues, he rejects the idea that business can't be a force for good and progress.

To begin with, Vasil started work at SamaKar's Montreal office. Then in 2029, he started the first SamaKar social franchise. He is the owner of SamaKarTO, and SamaKar provided capital for him to get started. Currently, he is pitching his business plan to investors.

Vasil was born in Pristina, Kosovo. He came to Canada with his family when he was four years old. He grew up and studied in Toronto.

He's excited to return to a city where he has roots

As an avid photographer and nature-lover, Vasil loves to spend downtime in Toronto's parks and nature. Therefore, he loves the myriad of beautiful road-trips, which are a two-hour drive outside of Toronto.

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.

For example, SamaKar uses Impact Scorecards to measure their impact on reducing poverty in people, families, and their communities.

When he left Toronto in 2021, the city of his youth was spiralling into inequality and unaffordability. He sees Toronto as a perfect city to bring all of SamaKar's enterprise solutions together; from KarmaNorth to KarmaSchoolTO.

Overall, he's enthusiastic about being back. He's also excited to scale, adapt, and diversify the SamaKar model in Toronto. Because he worked at SamaKar for eight years, he is well-versed in their global network of corporations and trainers.

Above all, he understands and laments Toronto's social and income polarization. As a result, he believes that SamaKarTO can be the spearhead of change. Because Toronto is a city with a long history of welcoming and caring for each other.

He believes that the redefined version of "Toronto the good" can reverse the prospects of the city's most vulnerable. For Vasil, It feels right to be part of the effort.

Scenario 3: Contributors

This scenario was written by Marco Campana. It was developed at the Microwork Drivers Workshop on December 10, 2019. It's based on the contributions of the following people. *With thanks.*

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Scenario 4: Corporate Cooperativism

> Microwork economies and winner-take-all profit motives are contentious. Concerns about climate change are paramount. And suddenly, mega-corps are aligned with environmental causes.

Government is proactive + profit before purpose

Scenario 4, Corporate Cooperativism, was developed at the microworking session held on December 10, 2019. The related persona is Dan Yoon.

Note: Corporate cooperativism is a concept that developed out of the first workshop. It does not to our knowledge exist as a popular term. However, platform cooperativism is a movement that offers new models for microwork. Trebor Scholz's work, Platform Cooperativism: Challenging the Corporate Sharing Economy, is a valuable resource. Also of note is the Platform Cooperative Consortium. In this scenario, profit before purpose has fostered multi-national, rather than worker involvement in cooperativism.

Mega-corps dominate cooperativism

Overall, this pervasive business model is "corporate cooperativism". Through their supply chain, corporations arrange a network of microwork interactions. Then, they use their networks to set global precedents and establish economic norms.

However, the government is trying to limit corporate influence. Through partnerships with industry associations and trade conglomerates, they are taking action. Because they want to protect their members and constituents. Yet they need to create regulations, which maintain relationships with corporate employers and the microwork platform winners.

To date, public service and civil society efforts have had limited success. They deal with four significant challenges:

- The economic inertia of the mega-platforms
- Difficulties in tracking cross-industry participants
- Fears of disrupting complex business operations
- Possible market effects that might result from aggressive trade or policy formulations

Although one successful government effort is retraining; governments frame it as "smart for business, people, and the bottom line." However, corporations have embraced the reframing. Because it's a worthwhile investment that allows them to scale their people as they scale technologies.

"Train yourself while you're training the AI." In fact, this has become the mantra for upskilling programs. Then, there are related programs, which have become an accepted norm for existing and new platform entrants. They work with credits to motivate early and mid-career workers to upskill. These policy mechanisms translate continuous learning into social and economic credits.

Also, leadership related to transparency is a government initiative that holds promise. The federal government made an election promise to enforce levels of transparency. Voters viewed it as a valuable first step towards data privacy and ownership. This step is fundamental to the government having the teeth to enact policies.

Climate change cooperativism aligns mega-corps

Currently, concerns about the impacts of climate change are paramount. Because people are aware of the expanding cooling and electricity requirements of server farms and data streaming. So microwork economies and winner-take-all profit motives are contentious.

In response, corporate cooperativism aligns mega-corps with environmental causes. They make investments in environmental reparations and clean solutions. Then, CEOs tell their shareholders that they are a necessary cost of ownership.

Also, proactive governmental policy initiatives encourage the reduction of environmental impacts. Policies are introduced regularly that apply end-to-end in supply chains. Initially, there was some push-back from multinational corporations. Yet, successfully removing energy impact early on removed corporate resistance. From a business perspective, environmentally neutral supply chains increase cost-effectiveness and improve profits.

To address public pressures, governments have re-evaluated the usage of streaming and data farms. They directed a wave of legislation toward the technology industry. However, the changes are moving slower than the rate of public opinion and concern. People demand certainty and effective action from all levels of government.

There are new instruments for corporate cooperativism

Against this backdrop, multi-nationals engage in corporate cooperativism. It is challenging to understand how it works. There is not a clear sense of the economic arenas they are competing in, versus those in which they are effectively cooperating. Therefore, economists are attempting to devise new instruments for corporate cooperativism.

People can perceive the effects of platform monopolies on labour environments. 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.

In an adaptive response, some policies ‘play’ mega-corporations against each other. Thanks to a progressive policy, corporations get tax breaks and incentives when they upskill or create job-growth opportunities. 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.

However, corporations are more successful than governments on social platforms. They have the organizational infrastructure to build and manage platforms, investment dollars, and have the human capital to operationalize systems.

Policymakers walk a fine balance being cautious and assertive

Governments are contending with the "regulation stifles innovation" sentiment. Policymakers are both cautious and assertive. Government has also directed some of the regulatory instruments at microworkers, which is also contentious. Because they are requested (and sometimes required) to report on their activities, policymakers want to investigate the inner workings of the microwork economy.

So the debate about government regulation and control is inflamed and coming from all sides. And the customer-centric corporate marketing model is the artillery holds sway with consumer opinions.

Due to ever-changing socio-economic dynamics, policies have a varied and often limited effect on the activities of mega-corporations. Restricting microwork exploitation and holding the reins on monopolies is met with obfuscation techniques by the corporate networks. Then, complex microwork distribution networks and profit-driven, corporate supply chains are introduced. Through platform cooperation, mega-corporations challenge the size and effects of government on economic policy outcomes.

Governments are re-orienting towards bottom-up effects and influencing labour-markets. Positive proactive policies that are having some effects include:

- Offering participation rewards
- Career trajectories and re-training programs that support developing new AI-oriented, in-demand skillsets

Toronto 2030

Public-private partnership mechanisms are incentivizing communities, and partnering with for-profit companies. Together they are working to shift labour from microtasking to higher-value jobs.

In fact, the government is enacting regulations that open the black box on microworking. The regulations are enabling continuous policy adjustments, which empower sustainable economies. Yet 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.

Meanwhile, the government voice isn't influencing public opinion. Sophisticated CSR campaigns portray responsible corporate actors. "We are innovating the future of microwork to enable a stronger economy" becomes a mantra. The government works with mega-corps to incrementally enact more effective policy controls. Economic growth and avoiding negative social outcomes are a key discussion topic.

Critical events

2020-2030: Corporate Cooperativism

To develop the scenario, the group established events that might take place if the government took a proactive role, and corporations were profit before purpose.

- Shared workspaces have grown; they're ubiquitous for non-standard employment.
- An increasing number of people augment and subsist on microwork income. This challenges the designation of 'non-standard employment'.
- Revenues are supported by emergent organizations. These organizations use new forms of supply chain infrastructures.
- Governments use global platforms and share social data/ information. Although they offer microwork services to their constituents, there's some trepidation about the unanticipated social costs and other effects. E.G: a lack of alignment with policy.
- Various social groups react to the increased use of microwork. This challenges the traditional labour structure and approaches to work agreements.
- There are growing concerns about microwork. Because it sets a precedent for work that is not guaranteed. Some see it as a dangerous trend. Because it impacts the feasibility of labour negotiations.
- Increasing backlashes between lobbyists and other groups. Because the tensions have grown between conflicting goals and agendas.
- "AI training AI" escalates fears that human work's importance has reduced.
- Workers and their allies demand assurances of living wages. Because affordability concerns are growing.
- Unrest against the perceptions of "big government" challenges the effectiveness of policy-makers.
- Government action is "interference in free-market economies."
- To support constituents, government policy encourages "platform cooperativism". This enables fair and responsible marketplaces.
- Microworkers participate in retraining and workforce development initiatives. This re-educates them while creating adaptive career trajectories.
- Reduced AI dependability on Human Intelligence Task (HIT) processing. Microwork is "macro" in nature. Because AI is taking over the simpler jobs.

Persona 4: Dan Yoon

> Dan wanted to do well enough to keep his job. Although he also wanted to minimize bad effects on people.

Government is proactive + profit before purpose

Scenario 4 was developed at the microworking session held on December 10, 2019. The related narrative, Corporate Cooperativism describes Toronto in 2030.

Note: Corporate cooperativism is a concept that developed out of the first workshop. It does not to our knowledge exist as a popular term. However, platform cooperativism is a movement that offers new models for microwork. Trebor Scholz's work, Platform Cooperativism: Challenging the Corporate Sharing Economy, is a valuable resource. Also of note is the Platform Cooperative Consortium. In this scenario, profit before purpose has fostered multi-national, rather than worker involvement in cooperativism.

Dan was always good with computers

However, when they assigned him his job, they didn't realize this was not a computer thing. It was a people thing. Although Dan Yoon liked people, he was an introvert. But because the money was better and the work was interesting, he couldn't say no to a promotion. Also, he was good at his job.

Although Dan was doing work that was a lot like what he did with computers. It was sort of like coordinating many servers in the cloud, although they sometimes de-synced. He was managing real people working on microwork tasks.

The output was about managing two sets of risks

The first one was rational, due to the fluctuating microwork market prices. If they had a flex-contract, people could start working and then switch to somewhere else. Of course, only after the first guaranteed contract deliverable. This type of contract was usually cheaper for the company.

The second risk category was less predictable because it addresses random work stoppages. Work could stop due to a heatwave, flood, or wage strike.

Dan wanted to do well enough to keep his job, which meant controlling the flow of tasks. Although he also wanted to minimize bad effects on people.

In some sense, Dan's work was like that of an investor, who monitored several "portfolios" in real-time. Except they were pods of real people, working on small tasks. If work stoppages occurred, or work of similar quality could be obtained for less, Dan had to switch, quickly and efficiently, to some other provider. He sometimes struggled, due to complicating factors. This depended on the type of contract and its compliance with the latest policy developments. But he was able to make it 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. Just like e-sports, a wrong decision could be detrimental. It might not get your team killed on the digital battlefield, but the wrong microwork deal could lose money. Because clients could become unhappy. If this happened, the company would first lose money, and then their reputation. Competition these days is fierce. So that was unacceptable.

If a microwork rating fell below the fabled "double-A", it could spell disaster. Because a company could cancel their competitive deals. At their size, that would mean the end.

Unlike most of their competition, large mega-corps with billions in their pockets aren't backing them. They were small in comparison and trying to be the good guys.

Scenario 4: Contributors

This scenario was written by Goran Matic. It was developed at the Microwork Drivers Workshop on December 10, 2019. It's based on the contributions of the following people. *With thanks.*

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Photo used to represent Dan by Munga Thigani on Unsplash
Overwatch Sport Competition photo by Florian Olivo on Unsplash

Roundtables and workshops

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online

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This resource is a print version of the content on the website.

Additional resources are available online.

Microtasking project toolkit

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