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Chair: Mr. Robert Morrissey





# Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities

Wednesday, November 1, 2023

• (1630)

[English]

**The Chair (Mr. Robert Morrissey (Egmont, Lib.)):** I call this meeting to order.

Committee members, it being 4:30 p.m., the clerk has advised me that we have a quorum.

Witnesses and committee members who are appearing virtually have had their sound tested.

We are good to begin meeting number 86 of the House of Commons Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities.

Pursuant to Standing Order 108(2), the committee is beginning its study on the implications of artificial intelligence technologies for the Canadian labour force. Today's meeting is taking place in a hybrid format pursuant to the Standing Orders. Committee members are attending in person as well as virtually.

You have the option to speak in the official language of your choice. In the room, the interpretation is available using your headset. Virtually, at the bottom of your screen you will have a globe icon. Click on it and it will give you the option to speak in the official language of your choice.

If there is an interruption in translation services, please get my attention. Those who are attending virtually, use the “raise hand” icon and I will suspend while it is being corrected. I would also ask committee members and witnesses to speak slowly for the benefit of the translation team.

For those in the room, if you could keep your earpiece away from the mike to prevent popping and possible hearing damage to the translators, it would be appreciated.

Please direct all comments through the chair and wait until I recognize you. As well, when we get the witnesses, please indicate who you're directing your questions to.

As you're aware, because we had a couple drop out today, there's one panel for an hour and a half.

From the Canadian Labour Congress we have Chris Roberts, national director, who is with us in the room.

From the Council of Canadian Innovators we have Laurent Carboneau, who is in the room.

From the Organisation for Economic Co-operation and Development, appearing virtually from France, we have Marguerita Lane.

[Translation]

Welcome, madam.

[English]

From Statistics Canada, we have Vincent Dale and Marc Frenette.

Because of the timeline, I'm going to ask Ms. Lane to begin with her opening statement, and then we will go through the rest of the witnesses.

Ms. Lane, you have the floor for five minutes or less, please.

**Ms. Marguerita Lane (Economist, Organisation for Economic Co-operation and Development):** Thank you for being so accommodating with the timing.

I'm an economist in the future of work unit at the OECD. I'm going to use my five minutes to describe, first, what I think makes AI different from previous technologies; second, what impact AI is already having on the labour market; and third, where policy makers should really be focusing their efforts.

First, on what makes AI different from previous technologies, from a labour market perspective, I think we can all agree that the sheer speed and scale of progress is quite interesting. Because AI can essentially learn and iterate, and because it has applications in practically every industry and practically every occupation, I think that in 20 or 30 years, AI will be so deeply embedded in our society and in our work that it will be difficult to imagine life or work before it. We can think of it in the same league as technologies like the Internet or electricity. Unlike previous technologies, AI can perform non-routine cognitive tasks, which means that many high-skill occupations, for instance engineers and scientists, are particularly exposed to AI. These are jobs that have been traditionally more sheltered from automation. They did things that technology couldn't.

I'm not saying that these occupations will disappear, but certainly I think these occupations will be transformed by AI. That's something interesting about this technology.

Of particular interest about AI as well are the many applications it has in hiring and management. This brings new opportunities but also new challenges to the work environment.

I'll now move to the impact on the labour market, which the OECD has been assessing through its own data-collection exercises. We tend to see things through the framework of job quantity, job quality and inclusiveness.

In terms of job quantity, we don't really see big signs that AI has impacted aggregate employment, at least not so far. When economists have done empirical studies looking at aggregate employment statistics, there's not really any strong evidence of mass displacement due to AI.

In a survey that the OECD conducted last year, which Canada actually participated in, over half of the firms that use AI—that we talked to—told us that it had had no impact on employment in their firms. Among those who reported that there was a change, they were relatively evenly split between those saying that AI had increased employment and those saying that AI had decreased employment.

Why is it that AI doesn't seem to have had a massive effect on employment, or hasn't reduced employment? Firms told us that AI mostly tends to automate tasks, rather than jobs. They tell us that the AI just isn't quite there yet.

Where AI does automate a job, firms said that they tend to manage this through reallocating workers to other business areas, through relying on slowing hiring, and through attrition and retirement.

Taking all of this together with the fact that employment levels are currently high in most OECD countries, and given what we expect to see in terms of an aging population in many OECD countries as well in the next couple of decades, I don't think that we are so concerned that AI is leading to the end of work. However, I think there is certainly a lot of potential for disruption as workers have to adapt to changing skill needs.

The same OECD survey found positive results for job quality, but also some risks. Workers who use AI were overwhelmingly positive about its impact on, for example, job satisfaction and health and safety. A large part of this, I think, is that AI tends to automate a lot of dangerous and tedious tasks. Also, workers told us that they appreciated when AI assisted them in decision-making as well.

• (1635)

At the same time, most workers who use AI said that AI increased the pace at which they work. Now, this could be AI enhancing their productivity, which I guess would be, in a way, logical. At the same time, we know that increased work intensity can also induce psychosocial risks such as increased stress and anxiety.

Many workers also expressed concern that data collection in the workplace could infringe upon their privacy and lead to decisions biased against them. Many workers supported banning or restricting the use of AI in processes around the hiring and firing of workers.

Then there are some implications for inclusiveness too. Even if it is the case that the highly skilled workers are more exposed to AI than they were to technologies of the past, I think it still remains a big concern whether those with lower skills have the ability and the resources to adapt.

These people might be in more precarious positions. They may have less bargaining power, and they may find it more difficult to re-skill or upskill.

When the OECD—

**The Chair:** Ms. Lane, could you conclude your comments? You can deal with what you missed in answering questions. If you could, just shortly wrap up.

**Ms. Marguerita Lane:** That's perfect.

There is obviously a need for policy-makers to act. In some cases, that can be done through existing legislation—for example, the legislation on discrimination, rights to organize and so on—but, obviously, other countries are developing AI-specific legislation and soft law. Training and worker consultation will be extremely important, and of course we need good evidence to track developments in this area, which the OECD will continue working on.

Thank you.

**The Chair:** Thank you, Ms. Lane.

Mr. Roberts is next, for five minutes, please.

• (1640)

**Mr. Chris Roberts (National Director, Social and Economic Policy Department, Canadian Labour Congress):** Greetings, Chair and committee members. Thank you for the opportunity to appear here today.

I want to begin by commending the committee for initiating this very important study. The impact of AI on work and employment is increasingly the focus of the attention of unions in Canada.

In 2022, the CLC formed a task force on AI and automation, comprised of unions from the public and private sector and a range of industries and occupations.

When asked, many workers report being optimistic about the potential of AI applications to improve and enrich work. It could do this by automating simple, repetitive tasks, allowing more time and attention to be devoted to non-routine, creative and skill-intensive tasks. This aligns with the OECD research finding that workers report improved performance and even improved job satisfaction following the introduction of AI applications in their work.

It also fits with the view that, as with many new technologies, AI has no intrinsic implications for the quality of work and employment. Technology is shaped by the social structures and power relations within which it is designed, developed and adopted. What matters are the choices we make about the direction of AI research and how AI is developed and deployed.

In the words of one economist, “AI can be a powerful tool for deploying the creativity, judgment, and flexibility of humans rather than simply automating their jobs”, but AI also has the capacity to reinforce existing inequities of income, wealth and power, aggravating the discrimination, exclusion and insecurity that many vulnerable workers face, undermining the privacy rights of workers as producers and consumers, and creating risks of individual and societal harms.

Many workers raise concerns about displacement and job loss. As AI automates not only routine but also non-routine cognitive tasks, the potential for job displacement will rise. Automation has historically had the greatest impact on low-skilled and semi-skilled jobs, but workers in high-skilled occupations now find themselves vulnerable to AI-driven displacement.

In addition to job loss, a significant concern is the potential for discrimination; monitoring surveillance at work; a weakening of privacy rights around the extraction, use and sharing of personal information; and the potential for individual labour and human rights violations. AI deployed in the human resource management functions of hiring, performance evaluation, promotion, discipline and termination is a particular source of worry.

Already, gig workers working for digital platforms struggle with unaccountable algorithmic management and arbitrary deactivations.

Facial and voice recognition technology deployed in workplaces like airports and technologies that monitor and collect information on workers' physical health are troubling.

Workers in marine ports already struggle with unfair and arbitrary decisions around security clearances. Automated decision-making that deploys pattern recognition algorithms could make these decisions even more unjust and arbitrary.

Finally, creative sector workers and those in the performing arts are worried about retaining control over their names, images and likenesses and ensuring fair compensation for their work.

Canada's unions have one overriding message for policy-makers on AI: As employers deploy AI systems, workers want greater transparency, information sharing, consultation and participation. They want the right to be informed, to be consulted and to participate in the process, and they want access to training and labour adjustment.

Our recommendations to the government include the following. The government should outline a vision and road map for appropriate regulation of AI development and adoption in workplaces. This should include a strategy for ensuring a voice for workers and unions in the regulation and oversight of AI.

It starts with a representative advisory council on AI. This would be able not only to make recommendations about emerging areas of concern for policy-makers but also to identify research gaps, data

and research needs and strategies for disseminating this research. Right now, workers have relatively limited rights to be informed, to have access to training and to be involved in the introduction of new technologies.

Access to vocational education and training is highly uneven in Canada, and labour adjustment is comparatively weak.

• (1645)

Chair, I see that my time has come to an end. I will leave my recommendations there and hopefully follow up in the Q and A period.

Thank you.

**The Chair:** Thank you, Mr. Roberts.

Please proceed, Mr. Carbonneau.

**Mr. Laurent Carbonneau (Director, Policy and Research, Council of Canadian Innovators):** Good afternoon, Mr. Chair and members of the committee. Thank you for the invitation. I'm very grateful for the opportunity to discuss AI policy issues with you here today.

My name is Laurent Carbonneau. I'm here today as the director of policy and research at the Council of Canadian Innovators, or CCI.

CCI is a national business council representing 150 of Canada's leading technology companies. We are dedicated to advocating for policies that promote innovation, economic growth and long-term prosperity for all Canadians. Our member companies are all headquartered here in Canada. They employ north of 52,000 employees across the country and are market leaders in the sectors of health, clean and financial technologies, cybersecurity, and of course AI.

AI will be a defining challenge of our time for policy-makers. A new, genuinely general-purpose family of technologies like AI could well have impacts on the world of work and the economy like those created by industrialization and electrification. I'll stress here that those transitions posed profoundly difficult policy challenges to governments, challenges that many were not able to meet equitably. It is good that this issue is getting active parliamentary scrutiny.

With that said, I think it is very premature to worry about things like large-scale job losses. Canadian businesses as a whole are facing the opposite problem—low productivity and an immense appetite for more labour. This is not normal for advanced economies. We should take a quick look under the hood of Canada's overall economic picture.

In terms of productivity—GDP per hour worked, by one measure—we recently clocked in under the OECD average, just behind Italy and just ahead of Turkey and Spain. We look much worse than they do on measures of work-life balance, where we're tied at 30th with the United States for leisure time, once again below the OECD average. Our net income, which counts taxes paid and services like health care received, has us 13th in the world, behind rich countries like the U.S. but also behind small economies like Belgium.

Canadians are working a lot to earn modest incomes even after accounting for services like health care and education. According to recent Statistics Canada data, productivity has actually just dipped below where it was at the same point in 2018. There's been no growth over the last five years. There's no getting around the fact that addressing the big challenges of our time—poverty, climate change and reconciliation, to name a few—requires us to be a richer and more productive country than we are now, and to do more with the same or fewer resources.

AI is fundamentally a family of technologies that makes both labour and capital inputs more efficient. Research, development, commercialization and adoption of AI collectively present an important opportunity for Canada to correct our worrying economic trajectory. We should work to make it a priority to adopt AI technologies that make our businesses more efficient and our economy better off overall.

What is important to understand about the economics of AI is that while AI is a novel technology, it does not defy the general way in which the economics of innovations work. Companies that are commercializing new innovations, particularly in information technology, succeed because they own intangible assets like patents that exclude rivals, they control vast amounts of data, and they leverage network effects to make their products and services more useful to users. Because of those fundamental drivers of success, today's innovation economy is characterized by superstar firms equipped with the IP assets, data and networks they need to fend off competitors.

AI is a heavily IP- and data-dependent business. The successful AI-driven businesses of the near future will replicate that winner-take-most pattern. Policy-makers focused on creating lasting and inclusive prosperity should prioritize growing Canadian competitors into global champions and leveraging their success into broad-based gains for the country.

The broad AI sector is currently valued at around \$200 billion, and by 2030 will likely expand to around \$2 trillion. Canada is well positioned in the industry in terms of highly qualified personnel and leading research, but Canadian companies face significant barriers while scaling. A lack of scaling Canadian companies means that many of the benefits created from public investment and research and training, including intellectual property, are accruing to firms outside of Canada.

For example, nearly 75% of intellectual property rights, including patents, generated through the federal government's pan-Canadian AI strategy are owned by foreign entities, including American tech giants like Uber, Meta and Alphabet.

The Scale AI global innovation cluster recently published a report that identifies barriers to adoption for Canadian companies. Companies face serious issues of access to top talent, despite our impressive research strength, because of lower wages compared with American competitors, among other issues. Canada's AI talent pool has actually shrunk by nearly 20% over the last three years. This is showing up in low rates of adoption: 48% of Canadian companies report not using AI compared with below 36% in the U.S., 38% in the U.K., and nearly 39% in France.

It's still unclear what AI will mean for the future of work and broad employment patterns, but one thing that is most immediately clear is that in a potentially era-defining niche in a winner-take-most sector, Canada cannot afford to move into the future as a late adopter of AI with little domestic capacity. That is a recipe for stagnation. Canada's innovators want to build the next generation of global AI players here in Canada.

I look forward to your questions.

• (1650)

**The Chair:** Thank you, Mr. Carbonneau.

Now, from Statistics Canada, we have Mr. Frenette or Mr. Dale for five minutes.

**Mr. Marc Frenette (Research Economist, Statistics Canada):** Mr. Chair, committee members, thank you for inviting us to this meeting. We're pleased to be able to inform you around discussions of the implications of artificial intelligence for the Canadian labour force.

Rapidly advancing technologies can perform some of the work humans do. Automation that is ruled-based and follows predetermined instructions has been capable of executing routine or manual work tasks for some time. More recently, significant advances in artificial intelligence, or AI, which makes predictions based on data, somewhat like humans do, have created new concerns for workers involved in cognitive or non-routine work.



Generally speaking, technology can have pros and cons for workers. Some workers can have their jobs transformed by it or even be completely replaced. On the other hand, technology can potentially boost productivity as workers focus on higher-level tasks that are better rewarded in the labour market, while robots and computer algorithms handle the more repetitive tasks.

More productive workers could help Canadian businesses become more competitive in global markets, which could improve standards of living for Canadians through job creation and increased wages.

Our data suggests that so far, technology adoption does not appear to be associated with widespread job losses, but it does appear to be associated with job transformation. Indeed, between 1987 and 2019, just before the COVID-19 pandemic, Canadian jobs were slowly moving away from routine manual tasks towards non-routine cognitive tasks. This is perhaps expected, as manufacturing and other industries implemented automated technologies to perform repetitive tasks, although other factors, such as increasing international trade, may have also played a role.

The reasons these trends were gradual despite significant developments in both automation and artificial intelligence are unknown. However, some of the possible factors that may have slowed the adoption of the more advanced technologies include the high investment cost required to implement the technology, regulations, and societal resistance to public-facing technologies such as self-driving cars or robotic doctors.

The COVID-19 pandemic may have accelerated the trends in job tasks seen earlier by giving an incentive to firms to invest in automated technologies and AI, allowing them to make their production and delivery processes more resilient to possible future shutdowns. Other factors could have played a role in accelerating these past trends, such as increased demand for goods and services produced by knowledge workers.

The data confirmed that since the onset of the COVID-19 pandemic, notable changes have been registered in the nature of work that Canadians do. For example, the share of workers in managerial, professional and technical jobs, which largely involve non-routine, cognitive work, increased from 32.3% in 2019 to 36.0% in 2022.

This increase over a short, three-year period accounted for almost one-third of the total increase registered over the last 35 years. The increase in recent years was counterbalanced by declines in the share of workers in service jobs, which went down from 21.3% in 2019 to 19.2% of all jobs in 2022, and in production, craft and operative jobs, which went down from 21.8% in 2019 to 20.5% in 2022.

All of these trends were largely similar for both men and women.

The increase in managerial, professional and technical occupations and the decline in service occupations were considerably more pronounced during the pandemic among younger workers aged 25 to 34 years compared with older workers aged 45 to 54 years. This may not be very surprising, as younger workers generally have fewer family obligations and more years to recoup their investments if they choose to retrain for a new career.

In any event, the more pronounced trend among younger workers may be indicative of future trends as older workers leave the labour force, making room for younger workers who are more amenable to taking on modern jobs.

Following the COVID-19 pandemic, another factor that could affect these trends is the very recent and rapid significant developments in artificial intelligence, like large language models such as ChatGPT, for example. Unlike previous technological developments, the implementation of advanced AI could potentially lead to significant job transformation among workers performing cognitive tasks, given the capabilities of this technology.

Whether or not this will occur is difficult to predict at this time, but may depend on the presence or absence of previous constraints facing AI adoption—namely, high investment costs, regulations and societal resistance, as I noted earlier.

• (1655)

Statistics Canada will continue to monitor and report important developments in these trends based on timely labour force survey data. Census data could also help establish trends for demographic groups of workers who may face particularly high risks.

Mr. Chair, this concludes my opening statement. We would now be happy to answer your questions.

**The Chair:** Thank you, Mr. Frenette.

Before we begin the questioning round, I just want to advise panellists that Ms. Lane may have to leave before we conclude, as it is nearing 11:00 p.m. where she is. If you have questions for her, I just want to advise you that she may be leaving.

We will begin with Madam Ferreri for six minutes.

**Ms. Michelle Ferreri (Peterborough—Kawartha, CPC):** Thank you, Mr. Chair, and thank you to all of our witnesses. It's very interesting and informative testimony that I hope we get in writing, too, with lots of stats coming out from you guys.

Ms. Lane, I will start with you.

I think one of the things that folks watching at home, and even ourselves here as members of Parliament, want to know is what is defining AI? What does that look like for you? What is your definition? Is it the self-checkout at the department stores? What is the definition of AI from a workplace perspective?

**The Chair:** Ms. Lane, you may be on mute.

**Ms. Marguerita Lane:** We tend to define AI as a computer system, essentially, that can enable machines or programs to do tasks that would typically require human intelligence.

One thing that is complicated in this area is that even AI developers, experts in AI, will actually disagree on what AI is. They will give you different definitions of AI so, as you said, there are many technologies that may or may not be considered AI, depending on who you're talking to.

**Ms. Michelle Ferreri:** Do you think it would be beneficial to have a definition of what it is when you're looking at legislation, a clear definition? If so, who would be responsible for defining it?

**Ms. Marguerita Lane:** I think it does have to be defined within the legislation, and, for example, I know the European Union has struggled with this, with exactly how to define it. I think the definition they chose certainly attracted some commentary. I have to say, though, I wouldn't be in a position to advise on exactly how to define AI.

**Ms. Michelle Ferreri:** Thank you for that, and thanks for your feedback.

Do you think that self-checkouts—I'll just say at a department store or a grocery store—are considered AI?

**Ms. Marguerita Lane:** I think they generally wouldn't be considered AI, because, typically, they are scanning a bar code. However, I would say that if you were in, for example, an Amazon warehouse and there was a machine, for example, doing a visual scan of a product and identifying that product, that generally would be considered as AI. Even when two different technologies essentially do a very similar thing, one might fall within the definition of AI and the other one might not, actually.

**Ms. Michelle Ferreri:** Thank you, yes. It's pretty hard to even critique it when there's not a definition of what it is. I think, sometimes, that seems to be a bit of an issue.

If I can jump to you, Mr. Carbonneau, thank you for your testimony; there were a lot of stats and interesting insights that you provided to the committee. I like your foresight of where Canada can be versus where Canada is. I was hoping you could expand on that a little. If you think Canada doesn't jump on this inevitable technology that is here—as we say, the toothpaste is out of the tube; the horse is out of the barn—where do you think that will place Canada if we are not competitive in this market?

• (1700)

**Mr. Laurent Carbonneau:** I'll point, once again, to the really excellent report that the Scale AI global innovation cluster put together, which does talk a bit about this. The report says that we're at a point right now where they see us as having some start-up strength and really good research capacity, but the reality is that we may end up not having much of an industry here because our scale-up companies are not able to scale because of the various barriers that they face, both technological and broader, in terms of innovation policy that enables the growth of innovative Canadian companies.

**Ms. Michelle Ferreri:** Can you expand on those barriers? What, right now, is preventing Canadian companies from really sinking their teeth into benefiting from AI?

**Mr. Laurent Carbonneau:** I mentioned labour, which is a significant one. Companies are having trouble finding people with the right skill sets. I mentioned that we have good researchers, but lots of those researchers end up going to work for the Googles, etc., of the world, which are able to pay much higher wages—with better weather, it should be said, in many cases.

That's wonderful for them, obviously, and wonderful for the people who get those jobs, but it's probably not great for Canada as a whole. We should be finding ways to help enable companies to make things attractive enough for people to stay. That's one piece.

Other than that, to some extent it's uptake. It's customers and markets. Right at the very beginning these companies have to be global, because the Canadian market is just not big enough on its own to really act as rocket fuel for these companies to grow. That's another one.

I think this—

**Ms. Michelle Ferreri:** I think I have only 20 seconds left, so I'm sorry.

I just want to jump back to Ms. Lane, if I can, because I know she has to leave.

How are you deciding who to survey? You gave lots of results on companies that you've asked for feedback from around AI, but how are you deciding who you ask, especially if there isn't a defined definition of what AI is?

**Ms. Marguerita Lane:** That is a good question.

We talk to firms and workers within the manufacturing and financial industries, so that obviously already steers the conversation towards industries where the use of AI is more prevalent and a bit more mature as well. We talk to firms that are using AI and also those that aren't using AI, so a mix of firms essentially.

**The Chair:** Thank you, Ms. Ferreri.

Mr. Coteau, you have six minutes.

**Mr. Michael Coteau (Don Valley East, Lib.):** Thank you very much, Mr. Chair.

I want to thank all of the witnesses who are joining us here today. I think this is an incredible opportunity for this committee to learn from you, and for you to share valuable information to help guide policy-makers going forward when it comes to the labour market.

I'll start with Ms. Lane.

Near the end of your presentation, you actually started to talk about the role of policy-makers in AI in general. Where do you see policy-makers? Could you maybe spend a bit more time on the role you see policy-makers playing in contributing to the growth and adoption of AI and the expansion of AI into our workforce?

Maybe you can just tap into some of the jurisdictions where you see it working well, and perhaps provide some insight on some of the key points that we should always consider when moving forward.

**Ms. Marguerita Lane:** I was really pleased, hearing some of the other presenters, that there actually seems to be a lot of consensus in what we're seeing. There seems to be a pretty consistent picture emerging in terms of the benefits but also the dangers of AI.

Let me get to this question of what policy-makers should be doing. I think the first thing is that you want to reap the benefits of AI, and you want to ensure that those benefits are available to everybody and to every company, as well as every worker. You also want to address the risks that AI poses for workers' fundamental rights and their well-being.

I began to describe how existing legislation, of course, is there to deal with some of these risks in terms of legislation for discrimination, data protection, workers' rights to organize, and occupational safety and health. I think that's already a very important starting point. We don't throw those things away just in the face of a new technology. Of course, there might be a need then for some AI-specific legislation on top of that, and for soft law to adapt as things move forward.

You asked a question about what is working well. I think the firms that are doing well working with AI, getting the benefits out of it and allowing their workers to benefit from it as well, tend to be those that are training their workers to use AI and consulting their workers about AI as well—this was mentioned by a previous speaker—and where workers can participate in the process. I think those are two key factors.

I also think public policy for training and education are very important to address changing skills needs, and then, of course, there's a need to ensure that collective bargaining and social dialogue can play a role as well in supporting workers and businesses through the AI transition.

I think it's also very important, as I said, for everybody to have the opportunity to benefit from AI. This goes back to education and training, but equally it's important to ensure that, for example, workers in SMEs also have the ability to adopt AI, and that they aren't excluded from the process just because of the data requirements and the heavy IP requirements as well.

For policy-makers, there's a requirement to keep track, to keep on top of all of this, so as I mentioned, the OECD's efforts are really focused. For instance—

• (1705)

**Mr. Michael Coteau:** I'm going to jump in. I think I have about one minute left, and I really want to ask some of the other witnesses some questions. Everything you said is very valuable information, and I wish I had more time, but I'm going to jump to another witness, and I do apologize for interrupting.

Mr. Carbonneau, you talked about IP. I know that the CCI has taken a position in the past that a lot of the intellectual property that's coming out of our universities is removed and brought to oth-

er jurisdictions because there's capital there. There may be more flexibility in those jurisdictions to scale up quickly.

One of the criticisms I've heard around why AI doesn't have the potential to grow in jurisdictions like Canada as much as it would in the United States or China is that it is because of the datasets that are being used to actually provide the input into AI for machine learning. Is that necessarily true, from your perspective?

**Mr. Laurent Carbonneau:** That's a good question, and I think I would have to consult with some members to give you a very hard answer. What I would tell you is that this hasn't come up.

I would say, perhaps on the processing side, that access to compute is an issue such that perhaps we might hit a bottleneck there in ways that other countries might not. I believe the government is perhaps looking at some options around that, which is, I think, all to the good.

I think we've had excellent efforts, like Canary, in the past, in terms of having some public compute capacity. I think that's a good idea and definitely something we should try to avoid that bottleneck around.

**Mr. Michael Coteau:** With respect to the 150 tech companies that are part of your consortium, there have been hundreds of millions of dollars invested by Canadian citizens, by government, into supporting research into AI. Do many of these companies benefit from that type of research investment?

**Mr. Laurent Carbonneau:** They do, absolutely. I think where we fall apart sometimes is in just making sure that Canadians see more benefit from the public investment we put in. We do get some—that's undeniable—but we want to make sure that the proportion of public value for public dollar to Canadians is as high as it can be.

**Mr. Michael Coteau:** Thank you so much.

[Translation]

**The Chair:** Ms. Chabot, you have the floor for six minutes.

**Ms. Louise Chabot (Thérèse-De Blainville, BQ):** Thank you, Mr. Chair.

I want to thank all the witnesses.

Ms. Lane, I want to make the most of your presence here as a representative of the OECD. Thank you for joining us. I know it's late.

I have two questions for you.

I asked people with the union movement in Quebec who represent workers in these sectors specifically to come testify for this study. AI technology may not have a tangible impact on labour yet. It's theoretical. We're trying to foresee what might happen, but nothing is clear yet.

Anyway, in Quebec, the questions people are asking about AI have much to do with ethics, especially in higher education. Many studies have been done on the impact of AI on work ethics and production ethics. People in some sectors are even saying we should put the brakes on. I think it will continue, just like automation.

We've talked about laws, but what should we be doing right now to get a glimpse of what's going to happen, kind of like what happened with automation? How can we get ahead of things given that the impacts are not very tangible yet?

• (1710)

[English]

**Ms. Marguerita Lane:** You talked about how the impact of AI at the moment is not so concrete; it's more theoretical. I think we are at an important point between the theoretical and the realized. In our survey, for example, when we asked workers about the impact on job quality and when we asked employers about the impact on job quantity, we were really asking about what has happened already. We found that there were already changes happening in the manufacturing industry and the financial industries. Yes, absolutely, much of the impact is theoretical, but I think it's important to note that there are changes happening already.

I think that there's an important point here about ethics and that there are important ethical questions related to AI. Within the workplace, we already have tools for dealing with some of the issues that AI raises. For instance, we can talk about the ethical risk in terms of the biases that AI can introduce, but, within the workplace, we have anti-discrimination legislation, so I think we can frame things in terms of ethics. This makes them sound a little more theoretical, but I think we do have real tools already at our disposal to deal with some of the more theoretical or more ethical aspects of AI.

What's an action that we can take now? I think we can start thinking about how we want to use AI in our society and in our workplace, and what we think are acceptable and good uses of AI. That can be a starting point for legislation around AI.

Just because something can be done, just because something is feasible within the technology, it doesn't mean that we have to follow through with it. Whether it's as a society or unions or businesses deciding this, perhaps all together we can already start to talk about what kind of society we would like to have and what AI's role in that society should be.

Thank you.

[Translation]

**Ms. Louise Chabot:** You talked about the European Union, which I believe passed a law. Are there other similar examples?

I'll leave it there for labour, collective agreements and unions.

What is a government trying to govern by enacting a law on artificial intelligence? What is the legislator's motivation?

[English]

**Ms. Marguerita Lane:** In the EU's AI Act, they have chosen to take the approach of essentially looking at high-risk and low-risk AI. The idea is that high-risk AI is the type of AI that will have to go through a specific process, a more burdensome authorization process, whereas low-risk AI can essentially sail through.

High-risk AI could be AI, for example, that's being used in situations where there is the risk of harm to a person—for example, their livelihood, their freedom or their health. That's essentially one approach that's being taken, and we will see how it works in practice.

Another interesting example is Germany. This has nothing to do with AI at all. This has been in place for a while. They essentially mandate worker consultation whenever any kind of technology is being introduced into the workplace and impacts workers' working conditions. I think it will also be interesting to see how that existing system is able to respond to the introduction of AI. It's not a piece of AI-specific policy; it has been in place for a while.

Those are two examples of how people across the world are dealing with this challenge.

• (1715)

[Translation]

**The Chair:** Thank you, Ms. Chabot.

**Ms. Louise Chabot:** Thank you very much.

[English]

**The Chair:** Madam Zarrillo, you have six minutes.

**Ms. Bonita Zarrillo (Port Moody—Coquitlam, NDP):** Thank you, Mr. Chair.

I think the majority of my time on this round will be with Mr. Carbonneau, please.

Thank you to all the witnesses.

I want to pick up on something in the testimony of Mr. Carbonneau on net incomes being too low in Canada. This is on my mind as it relates to AI. How do we protect the income of workers when their cognitive value, which is their ideas or their thoughts, is already captured, copied, scaled and potentially monetized?

How do we protect their cognitive IP? We always talk about intellectual property, but how do we protect their cognitive property when it maybe only needs to be a thought that has been shared once, twice or three times and it can be scaled and used?

**Mr. Laurent Carbonneau:** That's definitely a big question, and I don't think I have a complete answer. I'm not sure that anyone does.

What I would say is that, in a broad sense, I think countries that do well in AI are going to be the ones that are able to develop acceptance for AI adoption and use in societies, and I think that we will have to answer those questions in some format probably sooner rather than later.

We do have a bill before Parliament right now, Bill C-27, that is implementing a legislative framework to develop a regulatory framework around AI. I think there's a lot of scope there, as that comes into force and the regulations are developed, to be quite sensitive to what the future of those kinds of issues looks like.

I will applaud some of CCI's other work here. We released a road map on responsible AI leadership in, I think, early September—time has blurred this fall, as I'm sure it has for many of you—that really gets into some of these issues around public trust.

I think one thing Parliament should strongly consider moving forward is creating a parliamentary science and technology officer who would play an analogous function to what the Parliamentary Budget Officer does and very similar to what the sadly now-defunct Office of Technology Assessment used to do in the U.S. Congress. It would give you as parliamentarians and the public timely, actionable information on emerging technology and science issues that would help inform a lot of these debates and give us all a level ground to understand a lot of these emerging technology issues.

I think that's the kind of social infrastructure, if you will, or parliamentary infrastructure that could play a very helpful function in addressing those kinds of issues and give us, I think, a better basis to do so.

**Ms. Bonita Zarrillo:** Thank you for that.

I thank you for your submission, too, the written submission, because I know that trust was one of the things that went into your written submission.

I think that one of the challenges with that is whether the average worker, the average family in Canada, has access to conversations around that. Do they have access to the decision-making process around that? I think that's one of the things that plays on the trust. What is difficult, is that, yes, some other body might be created, but how do they get access points into that?

It gets me thinking about how that interacts with the conversations that are happening right now around basic income, because it's almost as if workers will have less power, especially if a lot of the value of this AI technology is in servers that aren't in Canada, or the data isn't in Canada.

Have there been discussions around how basic income intersects with artificial intelligence as it relates to incomes for people?

**Mr. Laurent Carbonneau:** From our perspective, I'm aware that there are some. This has been a topic of discussion at a high level, but speaking for our members, I can't say that this has come up a whole ton for us, because I think this is a fairly remote prospect in terms of being a reality.

• (1720)

**Ms. Bonita Zarrillo:** All right. Thank you.

It does worry me when I hear that we're consulting with manufacturing and finance when we have a lot of women in the care economy. A lot of women workers who do care aren't, it sounds like, getting equal exposure in this conversation.

I'm going to move over to Mr. Roberts.

Thank you so much for your testimony.

One thing that is on my mind—as this committee also looks at persons with disabilities—is that there's potential opportunity here for more equity in the workforce as it relates to persons with disabilities.

I just wonder if you could expand a bit on how this could assist workers. I think also about marginalized workers in the care economy, who have been undervalued, under-resourced and under-protected in the economy.

**Mr. Chris Roberts:** I had hoped to address this in my introductory remarks, but I didn't have time.

I think you're absolutely right that for workers with physical challenges, for instance, AI applications have enormous potential to increase their participation.

I think the surrounding investments in workers with disabilities are absolutely determinative as well. There has to be the openness to accommodating those workers. The arrangements and conditions that unions and disability rights advocates call for now also have to be included in the mix.

There's no simple technological solution to the barriers and challenges that workers with disabilities face, but there's no question that there's potential in the technology. It's all about how the technology is adapted, deployed and implemented in workplaces.

**Ms. Bonita Zarrillo:** Thank you so much. I just want to ask about conversations about incomes.

Right now, incomes are too low in Canada. We know that. We know that even income supports aren't keeping up with the cost of living in this country.

Does the Canadian Labour Congress see artificial intelligence being able to enhance incomes or support more income protection programs? How do you see this affecting the incomes of Canadians?

**The Chair:** Give a short answer.

**Mr. Chris Roberts:** The technology is not determinative. It's the conditions and the social structures that matter.

That's why I don't agree that productivity is determinative in the short run. In the long run, it may shape and determine prosperity, but if productivity advances from AI flow entirely to the owners of these applications and the firms that deploy them, then it's not going to improve incomes for the lowest income-earners.

**The Chair:** Thank you, Madam Zarrillo.

Before we go to the second round, I just want to advise Ms. Lane.

It's your option to stay. You can see that a lot of panellists want to speak to you. When you choose to leave, simply wave your hand and log out. It's your call, Ms. Lane.

We'll go to Mrs. Gray for five minutes.

**Mrs. Tracy Gray (Kelowna—Lake Country, CPC):** Thank you, Mr. Chair, and thank you to all of the witnesses for being here.

My first questions will be for the Council of Canadian Innovators.

In your opening remarks, you talked about low productivity being “not normal for advanced economies”.

I'm wondering if you can explain that or go into a bit more detail on what you meant by that.

**Mr. Laurent Carbonneau:** It's a very big question.

If you look at our standard of living, our incomes and a lot of these things, you would think that this is a very productive economy, but if you look under the hood, it's less productive than you would expect. There are a lot of reasons for it, which are historical and have to do with industrial structure...

That's what I mean, fundamentally.

**Mrs. Tracy Gray:** How does that relate to Canadian citizens? What does that mean for Canadians and also for the business climate here?

**Mr. Laurent Carbonneau:** I'll pivot back to something Mr. Roberts said, which was about this not being the be-all and end-all. I think that's entirely fair. It really does matter where the money goes. It's all about how much wealth we are generating as a country, and then where the wealth goes is very much the stuff of politics. That's all fair; I don't disagree with that.

To that point, the impact of this is how wide our horizon is as a country. If we're not a very productive economy compared to our neighbours, then it just forecloses options for us in the future. It forecloses options in terms of how we deal with problems like climate change, reconciliation and poverty. It just limits the real resources that we have at our disposal for dealing with those social problems and for enjoying a high standard of living.

• (1725)

**Mrs. Tracy Gray:** That's great. Thank you.

I'll go over to the OECD representative on that same topic—

**The Chair:** She has gone.

**Mrs. Tracy Gray:** Oh, has she gone? Okay. I knew that at some point she was going to remove herself.

I'll go back to the Council of Canadian Innovators. Where are we trending right now in terms of productivity?

**Mr. Laurent Carbonneau:** I mentioned this in my opening statement. From 2018 Q2 to now, there have been little wobbles, but we're actually a little below where we were in 2018 Q2. That's pretty worrying, isn't it? You expect to see a low but reasonably consistent level of productivity growth. Obviously, these last five years have been odd in lots of different ways, but other countries have not had that experience.

It will be very worrying, I think, if we see that trend continue. We hope it doesn't, but I think there are some structural reasons to think that it might continue to be the case.

**Mrs. Tracy Gray:** How do we compare with other countries? Where are we in scale, I guess you could say. How do we compare with our largest trading partner, the U.S.?

**Mr. Laurent Carbonneau:** I can speak to the U.S. part. We are well behind the U.S. There's a pretty big gap between output per hour.

On the others, I honestly would have to get back to you. I have a couple of comparisons in my statement there, saying that we're right around where Italy, Turkey and Spain are, but I don't remember the exact top 10 or however many.

**Mrs. Tracy Gray:** On the topic of the U.S., in “A Roadmap for Responsible AI Leadership in Canada”, you referenced that the U.S. was doing work on this. They came out this week with AI rules in the U.S. I'm wondering if you could comment on whether you've had a chance to go through those yet. Do you have any thoughts on those?

**Mr. Laurent Carbonneau:** Yes, I took a quick look. I would say it's a pretty impressive suite of measures. I think, broadly speaking, it's very good. It goes further than what we have as a legislative framework currently, which is frankly what you'd expect. I think the current AI bill is saying that this is sort of how we will frame rules, and then let's create those rules.

The executive order is really a very different approach. It's what they can do through executive action. There are some really interesting measures in there around standards. There are some really interesting measures around the audit of large language models that might have security implications.

Overall, I think it's a really impressive package of work. I would have to look a bit more into the details of how that's going to shake out, but I think our first impressions were reasonably positive.

**Mrs. Tracy Gray:** I have one more quick question here. I'm almost out of time.

Without going into the weeds at this point, do you think there's some benefit for Canada to harmonize with countries like the U.S., and maybe other countries—to really look at harmonization? Would that be something that Canada should be considering?

**Mr. Laurent Carbonneau:** Absolutely, yes: I think that's the short answer. As I mentioned earlier, when it comes to scaling AI companies, Canada's not a huge global market. If companies are able to compete globally from day one because our regulatory system is aligned with those of the EU and the U.S., that is a very big advantage.

**The Chair:** Thank you, Ms. Gray.

We'll go to Mr. Kusmierczyk for five minutes.

**Mr. Irek Kusmierczyk (Windsor—Tecumseh, Lib.):** Thank you, Mr. Chair.

This is an absolutely fascinating and timely discussion. Today President Joe Biden tweeted about his executive order on AI. I know that tomorrow the U.K. will be hosting an international summit on AI safety. Again, this is a very, very timely discussion. I want to thank my colleague, Michael Coteau, for bringing this study forward to the committee.

Mr. Roberts, I was very interested to read the report that was published by the CLC and the Pembina Institute and that just came out in September, “A Sustainable Jobs Blueprint”. It talks about how Canada can build a framework of supports that can help workers transition to a zero-emission economy. It's a great read. I highly recommend it. It really dovetails nicely with the legislation that's in front of Parliament right now, Bill C-50, which we brought forward.

Can you talk about some of the parallels or lessons from that conversation or from that process and how they might apply to this conversation about the challenges, whether it's AI or whether it's automation or digitization, and about what lessons and parallels we can draw from that?

• (1730)

**Mr. Chris Roberts:** The labour movement, for a long time, has championed the notion of just transition to a sustainable economy, with the idea being that workers have to see their own future in the new economy, otherwise they won't support moving to a net-zero arrangement. The idea was that workers have to participate in the process. They have to be involved, and their interests have to be included in the transition.

The same goes for AI, I would argue. If workers are involved, if they see a pathway to a prosperous future for themselves and for their family, they will be involved. There will be a social licence to participate.

That also means we have to think about digital skills, about digitalization of work as a similar transition to the transformations in work that will be required to move to a sustainable economy. That means investing in labour adjustment mechanisms, ensuring that training is much more equitably distributed than it is today and that continuous and lifelong learning opportunities are available to enable mid-career workers, for instance, to adjust, and the like.

Your analogy is very appropriate.

**Mr. Irek Kusmierczyk:** Do you have specific recommendations in terms of how the voices of labour and the voices of workers could be included in that conversation?

Our government has put forward over \$400 million towards the pan-Canadian AI strategy. We have centres set up across the country looking at this issue.

How do we get workers and labour—their voice—into that conversation?

**Mr. Chris Roberts:** Bill C-50 and the sustainable jobs framework contemplate a partnership council that will bring workers, industry and other interests together to address the skills and labour market programming needs to make that transition.

We can similarly fashion institutions that bring workers and their organizations into the process. There is an AI advisory council currently. Unfortunately, it's constituted exclusively by industry and academics. There are no civil society, labour or human rights advocacy organizations, etc.

That would be a starting point—to create a body that can identify skills needs and programs that are required, collaboratively, and instill some of that social licence that's required. Then, I think having sectoral tables as well that identify industry and sector-specific needs in response to AI development and the digitalization of work would take us a long way down the road.

**Mr. Irek Kusmierczyk:** Absolutely.

I'm going to share, Chair, the bulk of my time with my colleague Mr. Fragiskatos.

**The Chair:** You have 30 seconds.

**Mr. Peter Fragiskatos (London North Centre, Lib.):** We'll make it 30 seconds.

Mr. Carbonneau, you mentioned productivity in general terms at the outset of your presentation. A few days ago I met with a representative from the Canadian Home Builders' Association, who brought up permitting.

We know that permits for housing at the municipal level often take a very long time to issue. Without getting into the reasons for that—because there are many—they mentioned AI as a solution to this. They pointed out that AI can approve a permit, according to all the guidelines that municipalities would want approved, in a matter of just a few minutes—or a few hours if it's not a few minutes.

What do you think about that as a solution to the housing challenges that are in front of the country right now?

**The Chair:** Give a short answer.

**Mr. Laurent Carbonneau:** I'll zoom out a touch, while keeping it short. I would say there is a broad opportunity for the public sector in general to use AI in a lot more of its operations.

For that to be the case, I think the way we approach procurement will probably have to change a bit to allow for a more back-and-forth dialogue between innovators and folks who want to buy innovation in the public sector.

We have structures that don't really enable that right now. Innovation is essentially an iterative process. That doesn't really flow with how things work right now.

I think that would be fantastic. I think there are obviously lots of use cases for AI in the public sector, housing included, but we'd have to look at those structures and see how we can make them work better.

• (1735)

**The Chair:** Thank you, Mr. Fragiskatos.

[Translation]

Ms. Chabot, you have two and a half minutes.

**Ms. Louise Chabot:** Thank you, Mr. Chair.

It's true, I only have two and a half minutes.

Good afternoon, Mr. Roberts. My first question is for you.

When I think about AI, I'm inclined to look at Quebec's union movement. Some Quebec unions are also affiliated with the Canadian Labour Congress, the CLC. There's a move toward creating models for working groups in some sectors in the collective agreements.

The issue before us is AI, but we've gone through automation already, especially in big corporations. Look at the auto industry, where AI has brought up new things.

You talked about social dialogue models, if I understood you correctly. In Quebec, we're very fortunate to have had the Commission des partenaires du marché du travail, the labour market partners commission, for 25 years now. It's a tripartite organization that brings together the major players, and we have looked at these issues. It's a great model.

Still, I do have some concerns. Correct me if I'm wrong, but I think the union movement can play a major role where members of collective agreements are concerned. Skills and training are part of it, but we know the rate of unionization in the private sector can be quite low. Fortunately, we're doing better than some other places, such as the United States. How can we make sure workers who aren't represented have what they need and can find their way?

Take Uber and Airbnb, for example, two companies that operate according to a low-pay, worker exploitation model, I would say. They have self-employed people from coast to coast to coast. That's a problem too.

Would you agree?

[English]

**Mr. Chris Roberts:** Yes, I would agree, and I think the problem you're pointing to is very important. I do think that collective agreements can sometimes set the pace for public policy and statutory innovations that affect all workers. Expanding access to unions is critically important, for workers who want them, so that they themselves can lift their voices and play a role in shaping technological developments at work.

For many ride-hail workers working for digital platforms, the question of misclassification of those workers is fundamental, and gaining access to the existing employment standards is the first step to getting some basic protections that are reserved for workers in an employment relationship. I think there is a combination of statutory, regulatory and workplace-level changes that can improve the circumstances for non-union workers, as well.

[Translation]

**The Chair:** Thank you, Ms. Chabot.

[English]

Madam Zarrillo, you have two and a half minutes.

**Ms. Bonita Zarrillo:** Thank you, Mr. Chair.

I'm going to ask this to Mr. Frenette from Stats Canada. One of the things I would like to have testimony on in this study is just around income protection for workers and improving the equitability of the workforce. My question is really around the information that's collected because, of course, as we always hear, "If we don't measure it, we can't reach our goals."

I wonder if you wouldn't mind sharing what information StatsCan has now in relation to income and an equitable workforce as it relates to changes with AI in the workforce. What would you recommend they collect, in terms of data?

**Mr. Marc Frenette:** We don't have a regular program of AI and income per se. In addition to what I talked about in my opening statement, there is some earlier work that I did, which looked not at AI but at automation risk. It found that workers who are in more vulnerable positions in the labour market tend to be more at risk of having their job tasks automated, and that includes low-wage workers.

That was a one-off, and I don't know if my colleague, Mr. Dale, has anything else to add to that. We do have a regular program of income, I will say, but linking that to AI is not a regular program that I'm aware of.

• (1740)

**Mr. Vincent Dale (Director General, Labour Market, Education and Socio-Economic Wellbeing Statistics, Statistics Canada):** If I may, I'll add a few thoughts and ideas.



I might encourage the committee to think in terms of upstream and downstream types of data. If we think of the upstream as being the extent to which AI technology is being adopted in Canada, there are some significant challenges around that, as you've discussed. There isn't necessarily a commonly accepted definition of AI. That being said, we are working with the OECD and other international partners to make progress on what we would call a measurement challenge. We have a couple of surveys that we have conducted, with some partial results that we can share with the committee in writing if you would like.

On the downstream effect, which is more pertinent to the question of income, through the labour force survey, other labour market information systems that we have and the census, we can look at the evolution over time of employment by occupation and income by occupation. We can see the downstream impact of technology. It's challenging to separate the specific impact of technology from other factors that influence labour market conditions.

The short answer would be that we have good, robust information on the income of Canadian workers.

**Ms. Bonita Zarrillo:** Thank you so much.

I would ask to get that information you offered to the committee. That would be wonderful.

StatsCan witnesses were here recently. They said 60% of...

Is that my time?

**The Chair:** Thank you, Ms. Zarrillo. We're over your time.

We'll go to Mr. Aitchison for five minutes.

**Mr. Scott Aitchison (Parry Sound—Muskoka, CPC):** Thank you, Mr. Chair.

I actually wanted to ask a question similar to the one Mr. Fragiskatos asked.

I'm the critic in the Conservative Party for housing. It's been a passion of mine. I used to be a municipal mayor. I recognize there are a lot of delays at the local level, particularly in building and planning departments and so on.

I wanted to give you a bit of time to elaborate more on how we could use AI in this technology to accelerate the process of getting things approved and built.

I'll let you run with that.

**Mr. Laurent Carbonneau:** To some extent, I might not be the best placed to speak to the specifics of this.

Ultimately, if the issue is municipalities having throughput issues and they are able to get an AI product or service from a provider that enables them to do this kind of work much more quickly, I think we should have frameworks that enable that.

As I mentioned earlier, the way in which procurement typically works is quite inflexible. There is a lot of needs definition that happens up front, and the specification tends to be very ironclad in that it doesn't change once it's been established. If you're a smaller company or if you're an innovative company that's trying to do something new, it might not look exactly like what the specs said at the

beginning, but you're locked into it, even if it wasn't the best idea or the best way to approach the problem.

I think a really big piece of this, as I said to Mr. Fragiskatos, is that we have to find ways for government to become better at buying innovation, and there are a lot of different ways we can do that. CCI is going to have a report on this in the next month or two. I'd be very happy to share it with you.

I think that's very key here. The public sector has access now to a lot more tools than it used to, but the procedures it uses to get access to them have not really kept up with that. Different countries, like Finland and the U.K., have developed new procedures and offices that are tasked with doing what's called public procurement of innovation in the literature, and we are just not quite there yet.

**Mr. Scott Aitchison:** This is one of those areas where—I'm not sure if it's a demographic issue, but it's certainly a skills issue—a lot of municipalities are facing this mass exodus of building professionals, for example. In Ontario, I met with the building officials association. A lot of them are getting close to retirement, so there are not a lot of people coming up through.

This is why I wonder about it as a tool. It's because what is an existing problem is only going to get worse if there are fewer people. Of course, you then lose institutional memory and those years of experience in the community and in the industry. I see the concern that some people may have that it's going to displace people, but I also wonder if it's not, in many ways, the natural progression of technology changing how we do things.

I think back to a speech I heard when someone was talking about innovation and the economy. The point they made was that when they invented CDs, nobody cried big tears for the vinyl record industry, because we stopped making those kinds of things. There are things that we just don't make anymore because technology has changed. There are many jobs that exist today that didn't exist before. There are lots of careers that exist today that no one had even dreamt of 20 years ago.

Could you speak a bit more about this? It seems exciting to me, yet I also feel very much like the conversation around this is edged with some trepidation or something.

Am I reading that correctly?

• (1745)

**Mr. Laurent Carbonneau:** I think that's true, and I think that's fair.

I will say off the top that vinyl has made a huge comeback. People love vinyl again.

**Mr. Scott Aitchison:** It has; it's true. That's very good point. It's cool again.

**Mr. Laurent Carbonneau:** I think that's right. I think what Mr. Roberts has said about the social licence piece of this is really important. I mentioned in my opening statement that we had electrification and industrialization, and those didn't always work out great for a lot of people.

In many ways, Luddites had a point; they had a very good point. They were broadly correct about their specific critique, which was that, as skilled artisans, as weavers, they were very affected by early industrial technology, and that was all fair. Perhaps they didn't deal with it in the way that was most productive, but, you know, that's all right. I think it's very normal and natural for people to be concerned about potential displacement around this.

Like I said in my opening statement, I think we're far from that being really live. I don't think that's necessarily going to be true forever. I think that's on the order of decades here, and the earlier we start talking about this and we start talking about how we want to use technology as a society, the better. I think that gives people room to do things that are productive, add to our wealth as a country, make us richer and add to our standard of living in a way that people can feel confident in.

I'm really glad that you guys are doing the study for that specific reason. I think it's really good to have these conversations in Parliament that you guys can take home and have at barbeques, really starting to build a bit of a social consensus around what's appropriate.

**The Chair:** Thank you, Mr. Aitchison and Mr. Carbonneau.

Mr. Van Bynen, you have five minutes.

**Mr. Tony Van Bynen (Newmarket—Aurora, Lib.):** Thank you, Mr. Chair.

There were a couple of comments you made earlier that are a bit of a concern to me, which were that for people to adopt or adapt and implement AI, they need to be global, and that's largely because of the level of investment that's required. To some extent, I guess that would influence the timelines for adaptation. What type of a timeline do you see for adaptation and implementation?

**Mr. Laurent Carbonneau:** It's very hard to put an exact timeline on this, but I would say that we will probably... Mr. Aitchison mentioned earlier these gaps in workforce and how you'll have people age out before new people are ready to come in. I think that we might be looking at a mismatch if we don't get serious about this in the next couple of years, because we're starting to see the foot go on the gas of AI adoption worldwide.

Historically, technology adoption among businesses in Canada has been slower than in other countries. If we continue along that historical path, we will end up behind in critical ways in AI in adoption, and I think we won't have the kinds of companies anymore that will be able to really grow here, because the market just won't be there. It will be very tough for them.

We have a bit of an edge right now, and, if we don't do the right things in the next couple of years, we may very well lose it.

**Mr. Tony Van Bynen:** You mentioned that another constraint would be our computing capacity, and I think you referenced the Canary set-up. What types of investments would the government have to make to make sure that we improve that computing capacity in order to create the industry that we want to grow?

● (1750)

**Mr. Laurent Carbonneau:** That's a very good question, and I can't speak to exact numbers here. Something I've heard from companies is that they're looking at computing capacity, access to computing, and this is starting to become quite expensive for a variety of reasons. I think this is something we should look at closely and maybe get a bit more of a feel across the industry for what those numbers look like. I can't speak to exact numbers, but it's definitely something we're hearing.

**Mr. Tony Van Bynen:** A government-sponsored sandbox that would enable industry to open some of that capacity could be an answer.

**Mr. Laurent Carbonneau:** Yes.

**Mr. Tony Van Bynen:** My next questions are over to Stats Canada.

Do you have data on the share of businesses in Canada that work with artificial technologies? What's their contribution to the GDP, and what percentage of the labour market do they employ?

**Mr. Marc Frenette:** We did have a few surveys conducted on this recently in terms of technology adoption, including artificial intelligence. We're not experts, neither me nor Mr. Dale, in that particular area. That's on the business side, and we would like to circle back to the committee with more precise information on those very questions, if you don't mind.

**Mr. Tony Van Bynen:** Again, my concern that is the genie is out of the bottle, and we're seeing that the pace of innovation and the level of impact are going to be quite significant over a very short period of time. I would like to see some type of measurement that would give us the scope and the scale of the issue and allow us to monitor progress in terms of reaching our goals. What elements would you be monitoring to provide the government with the kind of information it would need to make fact-based, future policy decisions?

**Mr. Marc Frenette:** Right now we're monitoring technology adoption, again including artificial intelligence. I think to have consistent data in order to establish trends is important. That word "consistency" is very important. If we can add more information to that, if there's the possibility of looking at the extent of the usage of artificial intelligence, that would be useful, in my opinion, from a researcher's perspective. Again, though, I would circle back to the experts on business surveys at Statistics Canada. We could definitely touch base with them.

**Mr. Tony Van Bynen:** I'm running out of time. I have one quick question.

Do you have any data that scales up or gives us the scope and the scale of what we have in terms of businesses that have been successful in implementing artificial intelligence technologies? If you can't respond now, could you send us the information you have that gives us the size of what the industry looks like today so that could be a baseline of what we have and we could measure what we're doing going forward? What information could you provide us with, and would you provide that?

**Mr. Marc Frenette:** We would be more than happy to forward your question to the experts in that area at StatsCan, and then we will get back to you promptly.

**Mr. Tony Van Bynen:** Okay.

I think I'm out of time, Mr. Chair.

**The Chair:** Thank you, Mr. Van Bynen.

For the benefit of committee, because we do have committee business, I'm going to go with three minutes to the opposition, three minutes to the government, two minutes to Madame Chabot and two minutes to Madam Zarrillo to conclude this portion of the meeting.

Mrs. Gray, you have three minutes.

**Mrs. Tracy Gray:** That's great. Thank you, Mr. Chair.

I'd like to ask a couple of questions to the representative from Statistics Canada.

You put out a report in July of this year on the changing nature of work. It talked about acceleration in the last few years of a shift in the Canadian workforce trends from manual labour to less manual labour. Your report shows that the share of employees who worked in, for example, managerial, professional and technical occupations went from 23.7% in 1987 to 36% in 2022, while employees working in production, craft, repair and operative occupations fell from 29.5% to just 20%.

My two questions for you are, one, what effects do you think AI might have had on these workforce trends, if any, and two, do you see any trends emerging over the next decade that you might be able to speak to?

**Mr. Marc Frenette:** If we're talking about the entire period from 1987 to, basically, today, for the most part it's been automation. Think about robotics; think about the car manufacturing plants, basically technology that follows predetermined prescriptions. Do this in the event of that, right? That's automation.

AI is far more intelligent, if you will, to borrow that term. It's much more human-like. The sense is that this has not really permeated as much in the labour market, especially if you go back to the eighties, which is when the study began.

What's going to happen in the future, we don't know yet. We're always happy to report the trends up until now at Statistics Canada. We'll continue monitoring these things. AI is expected to, according to experts, start becoming more visible in the economy in the years to come. At least, its capability is expected to increase dramatically in the next few years according to a lot of experts who are out there.

• (1755)

**Mrs. Tracy Gray:** That's great.

My next question is this. Do you think there is anything you should start tracking now that maybe you're not that might involve this evolution of AI, or are there any discussions around that, where you should be maybe looking at different statistics going forward that you're not right now?

**Mr. Marc Frenette:** Again, specifically focusing on AI—and I think I responded to the previous MP about that—looking at the extent of AI adoption would be very useful. We might be looking at it right now, but I'm not a business-side expert. This is what I believe would be important. Adoption is one thing, but the extent—how much of AI is actually being used—can give you a better sense of where we might be going.

**Mrs. Tracy Gray:** Thank you so much.

I will just ask one more quick question here, to the Council of Canadian Innovators.

We talked about looking potentially at other countries and what other countries are doing. Do you think AI is something that should be considered when we're looking at trade agreements? I know you talked about intellectual property in your opening statement. We have only a few seconds left. Do you have any comment on that?

Thank you.

**Mr. Laurent Carbonneau:** The short answer is absolutely yes. Certainly, if we're not doing it, others will.

I would point back to the renegotiation of NAFTA, which resulted in CUSMA. I think we will look back on the digital trade chapter as something that has unfortunately not been super good for Canadian innovators. I think we need to be quite sophisticated about these things, because others already are with regard to IP and other things. We need to get to where they are.

**The Chair:** Thank you, Ms. Gray.

Mr. Collins, you have three minutes.

**Mr. Chad Collins (Hamilton East—Stoney Creek, Lib.):** Thanks, Mr. Chair, and through you to Mr. Roberts.

Mr. Roberts, I want to talk about labour stability for a minute. We heard from Mr. Frenette and Ms. Lane about the incredible pace in terms of what AI is doing to the workforce. Changes that used to happen in decades are now happening in a couple of years. We're all interested in labour stability to ensure that there is no disruption to the economy and people continue to work.

I watched with interest what happened with the Hollywood writers' strike. AI was the focus there. The UAW has had many strikes now. AI is at the heart of some of those discussions and those new agreements. In those instances, the collective bargaining agreements take care of what happens with AI in the workforce. Conversely, in California they've had a push against autonomous vehicles and autonomous trucks on the road. That was driven by the union movement, asking government to legislate those changes.

I'm wondering where we draw the line between leaving unions and employers to their own devices to sort out some of these things through collective bargaining agreements versus governments taking a proactive stand and saying, "Do you know what? We're going to step in at the front of this process. We're going to set the ground rules."

**Mr. Chris Roberts:** That's a terrific question. I think in all instances, unions would welcome a managed introduction of new technologies like AI. I think some of the explosions or confrontations that we see are often in reaction to the threat of not instantaneous but sudden introductions, in a very dramatic and disruptive fashion, of new technologies.

The beginning of a debate, a societal debate or a public debate, that's inclusive and that brings in the various interests that you want to have involved in the conversation in order to have that social licence, I think, will help ameliorate the uncertainty and the lack of trust, and hopefully will diminish some of the confrontations we've seen around new technologies.

**Mr. Chad Collins:** Very quickly, you mentioned the whole issue of transparency a couple of times, as did others. What should we be interested in with regard to legislating something that drives transparency to ensure that everyone who is dealing with this issue...either through a collective agreement process or legislators who are looking for new language to implement in terms of protecting the workforce or sectors? What recommendations do you have in terms of what role we play in terms of driving transparency through those processes?

• (1800)

**Mr. Chris Roberts:** That is a great question. I think the sky is the limit. The White House executive order, for instance, explores the idea of requiring AI systems developers to share their data and the results of their testing and their impact assessments with government and with regulators. I think that's important.

Analogously, there is now a right to be informed about the introduction of potentially hazardous chemicals and materials in the workplace when it comes to the health and safety of workers. I think you could think of AI analogously. If there is the potential to have the introduction of a system that will have very transformative and disruptive impacts in the workplace, we could think about a right for workers to be informed; to have an opportunity to ask questions and learn about the consequences for their work, etc.; to be consulted; and to then have basic protections around labour adjustment and the right to retrain, upskill and adjust.

**Mr. Chad Collins:** Thank you, sir.

[Translation]

**The Chair:** Ms. Chabot, you have two minutes.

**Ms. Louise Chabot:** Mr. Carbonneau, I'd like to chat with you.

If I understood you correctly, you see AI as an opportunity, not a threat to jobs. You said a lot about productivity. I don't know if we agree on the definition of productivity, but I see things from the workers' point of view.

We're seeing a lot of burnout in workplaces these days because of the workload. Take the health sector, for example. What about people working in home care and youth centres? Their productivity is measured in case numbers, but it should be evaluated in terms of quality too.

When it comes to AI, my takeaway from what you said is that it's supposed to eliminate tasks, not replace jobs. Some tasks may deserve to be eliminated, but not jobs. Employees are part of the business, not just new workers, but the ones who are already there.

How can we make sure that productivity is not merely about a company's profitability, but also about quality of work and the energy people get from their workplaces?

**Mr. Laurent Carbonneau:** Thank you for your question.

I'll answer in English.

[English]

What Mr. Roberts said, I think, is really applicable here. This is going to be a process that is going to be gradual and over time. I think there's going to be, as we've already seen, flare-ups around the use of AI in the workplace in various ways. I think that's healthy and productive. I think the more that happens, the more we will have broad discussions about how people's data is used in the workplace and about privacy, which was brought up earlier, and about standards of work and how productivity is measured just in the workplace, without regard to national statistics. These are all live questions, and I think many of them are for the bargaining table. Many of them are for regulation. I know the European Union's AI Act sort of has some of this built into it, defined as high-risk systems. Perhaps we'll follow suit with how we end up defining high-impact systems here.

All that is to say that I don't have hard answers. I don't think anyone does. I just think this will be a place where we're all going to have to figure it out together. If we don't, I think we will end up in a place where we're not particularly competitive with regard to AI adoption and deployment.

[Translation]

**The Chair:** Thank you, Ms. Chabot.

Ms. Zarillo, you have three minutes.

• (1805)

[English]

**Ms. Bonita Zarrillo:** Thank you, Mr. Chair.

I'm just going to go back to my question for Mr. Frenette. When StatsCan was here last time, they said that 60% of open jobs right now needed grade 12 education or less. I'm just wondering if that's part of a trend.

As a research economist, do you think the expansion of AI into the economy will affect the needed education levels for workers?

**Mr. Marc Frenette:** I believe Mr. Dale was here last time with those trends.

Just to answer your second question, I think if technology is changing then the needs of the labour market might be changing, so the skills required to work with that technology could change accordingly. That's a bit of a general answer, but that would be a consensus view from economists.

**Ms. Bonita Zarrillo:** Thank you so much.

Mr. Dale, do you want to make any comment?

**Mr. Vincent Dale:** Yes. I have a couple of comments.

I would say first of all that the trend in job vacancies is at least superficially consistent with Dr. Frenette's research, which shows a shift in employment towards, say, higher-education jobs. We have to remember though, that there are multiple factors acting on the labour market at any time—including technology, business cycle, interest rates and all sorts of factors—that could explain that drop in job vacancies and higher-education jobs.

The one thing I'll highlight, though—and it's been said before—is that the uniqueness of AI is that it represents a risk or a threat to jobs involving a high level of cognition. It's not about replacing

manual tasks; it's about replacing something like human intelligence. In that sense, as I've said, I wouldn't make a direct connection between the patterns in job vacancies and AI. I would just suggest that people think in those terms. There are multiple factors at any one time. If AI is affecting the higher-end distribution of jobs, that's a trend or an indicator to keep an eye on.

**Ms. Bonita Zarrillo:** We're still keeping data, though, on how incomes are going up and down. Can you just share with the committee what the trend is right now for incomes in Canada? Are they going up or down over the last 20 years?

**Mr. Vincent Dale:** It's a very complex topic. I wouldn't want to summarize that in a few words, but I'd be happy to give you a one- or two-page summary in writing, if that would be okay.

**Ms. Bonita Zarrillo:** Yes, please. Thanks so much.

**The Chair:** Thank you, Madam Zarrillo.

Mr. Dale, please provide that to the committee for Madam Zarrillo as well as the others.

With this portion of the meeting, we will suspend while we move in camera to do committee business.

Thank you to the panellists and witnesses who have appeared today. Those appearing virtually can simply exit the meeting.

Madam Zarrillo, you will have to come back into the business portion with a different Zoom address.

To those in the room, thank you, Mr. Carbonneau and Mr. Roberts, for interesting discussions. Thank you for coming.

We'll suspend for three minutes.

[Proceedings continue in camera]

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