MaRS and CIBC INCLUSIVE DESIGN CHALLENGE Future of Work

[Main Landing Page, Small Box Descriptions]

Challenge description

The fourth and final installment of the Inclusive Design Challenge Series seeks solutions that **prevent and/or reduce** AI Bias and the impacts it has on the recruitment of people with disabilities.

We invite both technological and non-technological solutions. Our challenge statement has more information on the different streams.

Who should participate?

- People with lived experience of disability
- Accessibility or Diversity, Equity and Inclusion (DEI) professionals
- Artificial intelligence (AI) experts
- Startups and ventures in the emerging technologies sector
- Human Resources (HR) professionals
- Researchers
- Private, public and nonprofit sector organizations
- Students
- General public

Prize

The total prize pool is $100,000

*Please review the prize tab for more details.

What's happening now?

The competition is now open and receiving applications.
Consult our Challenge Rules for further information.
Watch our challenge launch event recording on the webiste to learn more about the Future of Work Challenge.

Background (first tab)

In 2020, MaRS and CIBC released a research report that profiled the barriers people with disabilities face throughout their employment journey. This prompted MaRS and CIBC to launch the Inclusive Design Challenge Series, a set of four distinct innovation challenges designed to seek solutions to help address and improve these employment barriers.

Members of the disability and innovation communities are invited to propose and develop solutions to overcome these barriers. The fourth installment of these innovation challenges is focused on the future of work.

The problem

People with disabilities have higher rates of both underemployment and unemployment. Even though there is significant evidence that companies benefit from the inclusion of people with disabilities in the workforce[1], people with disabilities face more barriers to securing meaningful, high-quality employment opportunities that appropriately utilize their skill sets.

The result? A large, untapped talent pool in the Canadian labour market.

Additionally, the number of people who have a disability is increasing, which poses challenges to the future of work for people with disabilities, if not addressed now.[2]

Future of Work: Why address this problem now?

The 'future of work' is frequently described as the way in which various forces of 'change' (social, economic, environmental, tech, political, etc.) affect three dimensions of work: where we work, who

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[1] The MaRS and CIBC Inclusive Design Challenge Research Report. 2020.
[2] Barry, C. (2022, December 2). Innovation is what we need for an accessible future. – Microsoft News Center Canada. https://news.microsoft.com/en-ca/2022/12/02/innovation-is-what-we-need-for-an-accessible-future/

does the work and <u>what</u> type of work is done[3].

Key themes of the future of work include:
- The impact of emerging technologies like Artificial Intelligence (AI) and Automation
- Remote/flexible work arrangements
- Shifting workplace priorities (importance of mental health, Diversity, Equity and Inclusion (DEI))
- Skill evolution (the need for continuous learning)

But a glaring omission is disability and the ways in which people with disabilities are impacted by these changes.

These are not new problems, and will only grow if they're not addressed now. As momentum builds around new opportunities in the three dimensions of work, it's clear that we can't separate the 'new' from older biases and attitudes that pose fundamental barriers for people with disabilities.[4]

Challenge Overview (second tab)

Challenge Statement

The rapid growth and adoption of emerging technologies are reshaping the future of work. This creates unique and complex challenges for people with disabilities[5]. In particular, Artificial Intelligence (AI) is woven into recruitment practices, serving as a gatekeeper for every step of employment. But bias in AI systems can lead to discriminatory practices that disproportionately affect people with disabilities.[6] [7]

The impacts include (but are not limited to) exclusion from job opportunities, algorithms that stereotype (unfairly screening out candidates), inaccessible technologies and lack of representation on teams developing AI tools.[8] [9]

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[3] Three future of work scenarios to help develop inclusion strategies for young people with disabilities. Institute for Work & Health. (n.d.). https://iwh.on.ca/newsletters/at-work/112/three-future-of-work-scenarios-to-help-develop-inclusion-strategies-for-young-people-with-disabilities

[4] Pereyra, D. (2022, October 20). The future of work and disability. We Count. https://wecount.inclusivedesign.ca/views/fwd/

[5] Bogen, M. (2019, May 6). All the ways hiring algorithms can introduce bias. Harvard Business Review. https://hbr.org/2019/05/all-the-ways-hiring-algorithms-can-introduce-bias

[6] Caccavale, J. (2022, October 28). Recruitment bias report: How bias affects hiring and how to remove it. Recruitment Software & Hiring Platform. https://www.beapplied.com/post/recruitment-bias-report-how-bias-affects-hiring-and-how-to-remove-it

[7] Tilmes, N. (2022, April 19). *Disability, fairness, and algorithmic bias in AI recruitment - ethics and Information Technology*. SpringerLink. https://link.springer.com/article/10.1007/s10676-022-09633-2

[8] Welker, Y. (2023, May 5). Algorithmic diversity: Mitigating AI bias and disability exclusion. Forbes. https://www.forbes.com/sites/forbestechcouncil/2023/05/09/algorithmic-diversity-mitigating-ai-bias-and-disability-exclusion/?sh=6d9200e6417d

For this reason, MaRS and CIBC are seeking solutions that **prevent and/or reduce** AI Bias and the impacts it has on the recruitment of people with disabilities.

Solutions will need to:

- Address AI Bias in recruitment, and
- Be led by or developed in direct partnership with people with disabilities

What do we mean by "AI bias"?

AI bias refers to situations where AI creates unfair outcomes, such as reflecting unjust prejudices or reinforcing existing social inequalities. It occurs when an AI system produces results that are systematically prejudiced due to erroneous assumptions in: the machine learning process, training data, or the design of the algorithms.[10] [11]

AI bias in recruitment refers to the unfair and discriminatory outcomes in hiring processes resulting from algorithms that have been trained on historically prejudiced data, leading to a perpetuation of workplace discrimination, lack of diversity, and missed opportunities for underrepresented candidates.[12]

Solution Streams

We welcome both technological and non-technological solutions to this challenge and offer two streams of prizing, depending on the stage and nature of the solution.

Stream A: Non-Technological Idea Generation:

This stream is dedicated to **cultivating new non-technological solutions** that prevent and/or reduce AI bias in recruitment for people with disabilities. New ideas/solutions means that the proposed solution has not been tested or implemented previously.

Examples of non-technological ideas that prevent and/or reduce AI bias in recruitment for people with disabilities include, but are not limited to:
- Policies guiding AI usage/development;
- Initiatives promoting more responsible AI practices;
- Methodologies for auditing AI practices among organizations;
- Educational campaigns promoting inclusive AI;

[9] Nugent, S. E., & Scott-Parker, S. (2022, September 8). Recruitment AI has a disability problem: Anticipating and mitigating unfair automated hiring decisions. SpringerLink. https://link.springer.com/chapter/10.1007/978-3-031-09823-9_6

[10] Welker, Y. (2023, May 5). Algorithmic diversity: Mitigating AI bias and disability exclusion. Forbes. https://www.forbes.com/sites/forbestechcouncil/2023/05/09/algorithmic-diversity-mitigating-ai-bias-and-disability-exclusion/?sh=6d9200e6417d

[11] Marr, Bernard. (2022, September 30). The problem with biased AIs (and how to make AI better). Forbes. https://www.forbes.com/sites/bernardmarr/2022/09/30/the-problem-with-biased-ais-and-how-to-make-ai-better/?sh=43a7708e4770

[12] Tilmes, N. (2022, April 19). Disability, fairness, and algorithmic bias in AI recruitment - ethics and Information Technology. SpringerLink. https://link.springer.com/article/10.1007/s10676-022-09633-2 d

- Data transparency standards;
- New collaboration/partnership models between experts and practitioners

We encourage anyone with an idea that reduces or prevents AI bias in the recruitment for people with disabilities to apply for this stream. This includes people with disabilities, community-based organizations, students, policymakers, researchers, innovators, advocates, etc.

Stream B: Technological or Developed Non-Technological Solutions:

This stream is dedicated to Technological and non-Technological solutions **that have already been initiated** to prevent and/or reduce AI bias in recruitment of people with disabilities. Solutions for this stream either have a prototype, Minimum Viable Product (MVP), or are operational in this domain.

Examples of such solutions include, but are not limited to:
- Specific software applications;
- Innovative modifications (plug-ins or add-ons) to existing AI technologies;
- Tools, inclusive databases, methodologies, policies, or recognized best practices currently effective in preventing and/or reducing AI bias in recruitment for people with disabilities. Crucially, these solutions should have demonstrable evidence of their impact.

Entrants must declare **one** Stream they are entering when submitting their entry. Entrants cannot enter under both Streams.

Evaluation (third tab)

Target (Pass/Fail)
- Is the solution designed explicitly for people with disabilities?
- Is the solution addressing AI bias in recruitment?

Innovation (25%)
This criteria evaluates the novelty of the solution:
- What is the solution?
- What's the value-proposition for people with disabilities?
- To what extent is the solution different from previous and existing solutions?

Impact (25%)
This criteria evaluates what success looks like:
- What will the solution achieve? (specify outcomes)
- How will the challenge participant measure impact? (the approach or methodology to data collection)

Feasibility (30%)
This criteria will assess the practicality of the solution:
- What is the plan for implementation?
- Is the team capable of delivering this solution?
- How easily can the solution be adopted by other organizations/people/governments?

Inclusion (20%)
This criteria evaluates the approach for considering and including diverse perspectives in the creation of the solution:
- What was the approach to inclusive design when designing, developing and implementing the solution?
- In what ways has the participant taken an intersectional lens in the design, development and implementation of the solution?

Prizing Tab (Fourth tab)

The total amount of funding to be awarded is $100,000 CAD

Stream A will have up to $25,000 CAD in funding

- No more than 5 prizes* awarded in this stream
- Any prize awarded in Stream A will be a minimum of $5,000 CAD

Stream B will have up to $75,000 CAD in funding

- No more than 3 prizes* awarded in this stream
- Any prize awarded in Stream B will be a minimum of $25,000 CAD

(Please refer to the "Challenge Overview" tab for more information on each stream and "Challenge Rules" on further details about prizes.)

*The *actual number* and value allocation of prizes for each stream will be determined in the judging phase, based on the strength and number of entries in the relevant Challenge stream.

Process (fifth tab)

Eligibility

You may only enter the Challenge if you meet one of the following three eligibility requirements, as outlined in the Challenge Rules:

1. You are an individual and, at the time of entry: (a) you are a legal resident of Canada, and (b) you are at least the age of majority in your resident province or between 13 years old and the age of majority, with your parent/guardian agreeing to these Official Rules on your behalf.
2. You are a group of individuals entering the Challenge as a team and: (a) each of you, at the time of entry, is (i) a legal resident of Canada, (ii) at least the age of majority in your resident

province or (iii) between 13 years old and the age of majority, with your parent/guardian agreeing to these Official Rules on your behalf; and (b) you designate one (1) member of your team as your eligible Authorized Representative (defined below) to enter the Challenge and signify your agreement to be legally bound by these Official Rules on your behalf; or

3. You are a company or organization which: (a) at the time of entry, is either (i) incorporated under the laws of Canada; or (ii) legally operating in Canada; and (b) you designate one (1) eligible Authorized Representative (defined below) to enter the Challenge and agree to be legally bound by these Official Rules on your behalf.

How to Apply

Step 1: Create a profile on https://challenges.marsdd.com/
Step 2: Read and agree to the Challenge Rules by clicking the "Accept Challenge" button on the Inclusive Design Challenge: Future of Work website.
Step 3: Complete the **Submission Form**:
   1. Be sure to follow the word limits.
   2. Save in **PDF format** with your team/applicant name and date listed in the file name *(e.g. Team-MaRS_Mar2024_ Submission-Form)*.
Step 4: Click "Submit Application" on the Inclusive Design Challenge: Future of Work webpage, and upload your saved Submission Form.

Alternative Formats

If you require an alternative entry format, please contact the MaRS Challenges team at challenges@marsdd.com or (647) 255-1452; together we will work to ensure you have a suitable alternative entry format that will allow you to complete all necessary requirements.

Deadline

Participants must submit their application before the deadline of **March 4, 2024 at 5:00 p.m.** (Eastern Time)

Timeline (sixth tab)

- Challenge Launch: December 4, 2023 at 1:00 p.m. ET

- Informational Webinar #1[13]: January 23, 2024 12:00-12:45 p.m. ET

- Informational Webinar #2: February 7, 2024 3:00-3:45 p.m. ET

- Submission Deadline: March 4, 2024 at 5:00 p.m. ET

- Winners' Announcement: TBA

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[13] Informational webinars will be in English, however, French translation will be available during the webinars.

Resources (Seventh tab)

Required for Submission
[Challenge Rules](#)
[Submission Form](#)

Additional Resources
[Accessible Website Content](#)
[The MaRS and CIBC Inclusive Design Challenge Research Report](#)

FAQ (Eight tab)

Who can participate in the Challenge?

You may only enter the Challenge if you meet one of the following three eligibility requirements, as outlined in the [Challenge Rules](#):

1. You are an individual and, at the time of entry: (a) you are a legal resident of Canada, and (b) you are at least the age of majority in your resident province or between 13 years old and the age of majority, with your parent/guardian agreeing to these Official Rules on your behalf.
2. You are a group of individuals entering the Challenge as a team and: (a) each of you, at the time of entry, is (i) a legal resident of Canada, (ii) at least the age of majority in your resident province or (iii) between 13 years old and the age of majority, with your parent/guardian agreeing to these Official Rules on your behalf; and (b) you designate one (1) member of your team as your eligible Authorized Representative (defined below) to enter the Challenge and signify your agreement to be legally bound by these Official Rules on your behalf; or
3. You are a company or organization which: (a) at the time of entry, is either (i) incorporated under the laws of Canada; or (ii) legally operating in Canada; and (b) you designate one (1) eligible Authorized Representative (defined below) to enter the Challenge and agree to be legally bound by these Official Rules on your behalf.

How do I enter the challenge?

Participants must submit their application before the deadline of **March 4, 2024 at 5:00 p.m.** (Eastern Time):

Submit your application online via the Inclusive Design Challenge: Future of Work [website](#):
   A. Create a profile on https://challenges.marsdd.com/
   B. Read and agree to the [Challenge Rules](#) by clicking the "Accept Challenge" button on the Inclusive Design Challenge: Future of Work [website](#).
   C. Complete this **[Submission Form](#)**:
      a. Be sure to follow the word limits.
      b. Save in **PDF format** with your team/applicant name and date listed in the file name *(e.g. Team-MaRS_Mar2024_ Submission-Form)*.

Click "Submit Application" on the Inclusive Design Challenge: Future of Work webpage and upload your saved Submission Form.

If you require another submission format or have questions, please feel free to contact us at **challenges@marsdd.com or (647) 255-1452** and we'll be happy to discuss alternative methods.

Are there different submission forms for stream A and stream B?

No, both streams A and B use the same submission form.

Can I participate in the Challenge as an individual, team, or organization?

You may participate in this challenge as an individual, a team, or an organization. Please indicate who you represent in your submission form.

How will you select the winners?

Winners will be selected by a panel of judges based on the Challenge Evaluation Criteria. Judges have lived experience and expertise in key areas related to the challenge, such as disability inclusion, innovation and technology.

What if I need to submit my solution in another format than those listed?

If you require another submission format or have questions, please feel free to contact us at **challenges@marsdd.com or (647) 255-1452** and we'll be happy to discuss alternative methods.

Can I get help in submitting my solution?

Yes, please contact the MaRS team at challenges@marsdd.com for help submitting your solution.

How many solutions can I submit?

You may submit a maximum of ONE (1) entry per individual, team or organization.

Can other participants view my submission?

No. Other participants cannot view submissions.

What if I have a question that is not addressed here?

Please contact the MaRS team at challenges@marsdd.com, we are happy to help!

Glossary[14] (Ninth tab)

Term	Definition
Access	A place that is easily reached, an environment that is easily navigated or a program or service that can easily be obtained.
Accessibility	The combination of aspects that influence a person's ability to function within an environment.
Accommodation	The personalized adaptation of a workplace to overcome barriers to access.
Assistive Technology	Any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capabilities of people with disabilities.
Attitudinal Bias	Pervasive myths that people have about people with disabilities that result in negative attitudes or assumptions about their ability to work.
Barrier	Anything physical, architectural, technological or attitudinal, that is based on information or communications or that is the result of a policy or a practice, that hinders the full and equal participation in society of persons with a physical, mental, intellectual, learning, communication or sensory impairment or a functional limitation.
Barrier-Free	Designed or planned to give access to the widest possible segment of the population, including people with disabilities.
Bias	A preconceived tendency, trend, inclination, feeling, or opinion.
Cognitive Disability	Refers to a person who has greater difficulty with one or more types of mental tasks than the average person.
Disability	1) A partial or full reduction in the ability of a human being to perform an activity in a manner or within the range considered normal because of an impairment. 2) The result of the interaction between a person and behavioural and environmental barriers that hinder their full and effective participation in society on the basis of equality due to an impairment.
Discrimination	An action or a decision that treats a person or a group badly for reasons such as their race, age or disability.
Disclosure	A process in which individuals decide when and if they will disclose their disability to their employer, and the implications of this decision.
Diversity	Recognizing and valuing differences between individuals and groups of people.

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[14] Unless otherwise stated, all definitions are provided by Accessibility Glossary
https://www.btb.termiumplus.gc.ca/publications/accessibilite-accessibility-eng.html

Inclusive Design Approach	Design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference[15].
Intersectionality	How a person's various marginalized identities work together to impact a person. For example, if someone is working class and has a disability, the combination of both factors together shape a person's life experiences. Understanding how intersectionality affects others and its impacts on society is critical to removing barriers to discrimination.[16]
Meaningful Work / Employment	Meaningful employment or work is work that gives purpose and/or allows people to follow their interests or achieve their goals.
People/Persons with Disabilities	Have a significant and persistent mobility, sensory, learning, or other physical or mental health impairment, which may be permanent or temporary; and experience functional restrictions or limitations of their ability to perform the range of life's activities.
Persons with Lived Experience[17]	An overarching term inclusive of individuals with personal experience of a health issue and informal caregivers, including family and friends.
Physical Disability	A physical condition that affects a person's mobility, physical capacity, stamina, or dexterity. This can include brain or spinal cord injuries, multiple sclerosis, cerebral palsy, respiratory disorders, epilepsy, hearing and visual impairments and more.
Societal Challenges	Barriers that exist because of the assumptions that the majority of people in a community, society, or any environment make about people with disabilities. This can include stereotyping, prejudice, and messaging about "the way things are" which may create or perpetuate disadvantages for people with disabilities.
Stigma	Negative beliefs and attitudes associated with a specific situation, characteristic, condition, or person.
Support Networks	Help individuals who are looking for support in the workplace by acting as a centralized source of information. These can include family members, friends, and other support systems to help people with disabilities achieve their professional goals.
Unconscious Bias	Judgements and assessments that unintentionally create or perpetuate disadvantage for a particular group (e.g., people with disabilities).

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[15] What is inclusive design. Inclusive Design Research Centre. (n.d.). https://legacy.idrc.ocadu.ca/about-the-idrc/49-resources/online-resources/articles-and-papers/443-whatisinclusivedesign

[16] Kimberlé Crenshaw on Intersectionality, more than two decades later. Columbia Law School. (2017, June 8). https://www.law.columbia.edu/news/archive/kimberle-crenshaw-intersectionality-more-two-decades-later

[17] http://www.cihr-irsc.gc.ca/e/48413.html#a4