Gender Equity in Canada's Tech Ecosystem

Attracting, Retaining, and Supporting Entry- and Mid-Level Talent

Research by

The Information and Communications Technology Council

Canada

This project is funded in part by
Women and Gender Equality (WAGE) Canada.

Preface

The Information and Communications Technology Council (ICTC) is a not-for-profit, national centre of expertise for strengthening Canada's digital advantage in a global economy. Through trusted research, practical policy advice, and creative capacity-building programs, ICTC fosters globally competitive Canadian industries enabled by innovative and diverse digital talent. In partnership with an expansive network of industry leaders, academic partners, and policy makers from across Canada, ICTC has empowered a robust and inclusive digital economy for over 30 years.

To cite this report

Maryna Ivus and Maya Watson, "Gender Equity in Canada's Tech Ecosystem: Attracting, Retaining, and Supporting Entry- and Mid-Level Talent," (Ottawa, ON: Information and Communications Technology Council (ICTC), May 2022).

Researched and written by Maryna Ivus (Manager, Labour Market Research) and Maya Watson (Research and Policy Analyst), with generous support from Faun Rice (Manager, Research & Knowledge Mobilization), Rosina Hamoni (Research Analyst), and Angela Stanley (EDI and Accessibility Consultant), and the ICTC Research & Policy team.

The opinions and interpretations in this publication are those of the authors and do not necessarily reflect those of the Government of Canada.

Acknowledgements

The contributions made to this report by our key informant interviewees, focus group members, and advisory committee are greatly appreciated. We would like to acknowledge all the contributors to this report for sharing their experience and expertise. The contributors include:

Khristine G. Cariño, PhD President, Society for Canadian Women in Science and Technology (SCWIST)

Debra Greig Board Member, Technology Alberta

Kimberley St. Pierre Director, Strategic Accounts, Tanium

Laurie Snell Director of Marketing & Communications, Ocean Startup Project

Stephanie Hollingshead CEO, TAP Network

Valentine Goddard Member of the Advisory Council on Artificial Intelligence of Canada, United Nations AI and Data Policy and Governance Expert, Founder and Executive Director, AI Impact Alliance

Heena Mistry, PhD Manager, EDI Training, Planning, and Strategic Initiatives, Wilfrid Laurier University

Malyka Ahmad HR Manager, Mistplay

Naomi Goldapple VP, AlayaLabs

Bibiana Pulido Director Réseau interuniversitaire québécois pour l'équité, la diversité et l'inclusion (RIQEDI), Institut EDI2

Nancy Deziel CEO, Centre National en Électrochimie et en Technologie Environnementales (CNETE)

Jennifer LaPlante Executive Director, DeepSense

Amanda Swain Director of Engineering, Canadian Internet Registration Authority (CIRA)

Audrée Lapierre Director of UX and Design, GSoft

Nur Zincir-Heywood University Research Professor, Dalhousie University, Faculty of Computer Science

Lisa Snider Senior Consultant and Trainer, Access Changes Everything Inc.

Stephanie Jonsson Executive Director, Ontario Digital Literacy and Access Network (ODLAN)

Kelly Riback Small, MDes, RGD Chief Creative Officer, Intents & Purposes Inc.

Aethelind Racic Software Developer, Shopify

In this publication, we use the term "Canadians" to include all residents of Canada.

Table Of Contents

Glossary of Terms

This glossary presents an overview of terminology used but not fully expanded upon in the text. Definitions are primarily sourced from the York University's "Gender Identity & Gender Expression: A Guide for Students, Faculty, and Staff," and modified, when necessary, with input from ICTC's equity, diversity, and inclusion (EDI) and accessibility consultant.[1]

Digital economy: the union of digital occupations and digital industries. It comprises tech workers (in all sectors) and (all) workers in the tech sector.[2]

Gender roles: learned behaviours in a given community that determine which activities, tasks, and responsibilities are perceived as masculine and feminine. Gender roles within a given social context may be flexible or rigid, similar or different and complementary or conflicting. Changes in gender roles often occur in response to changing economic or political circumstances.

Gender expression: the various ways in which people choose to express their gender identity. For example: clothes, voice, hair, makeup, etc. A person's gender expression may not align with societal expectations of gender. It is therefore not a reliable indicator of a person's gender identity.

Gender identity: an individual's intrinsic sense of self. It relates to how an individual defines their gender regardless of their assigned biological sex.

Gender nonconforming (GNC): a person who does not conform to society's expectations of gender expression based on the gender binary, expectations of masculinity and femininity, or how they should identify their gender.

[1] "Gender Identity & Gender Expression: A Guide for Students, Faculty, and Staff," Centre for Human Rights, Equity and Inclusion (blog), accessed February 21, 2022, https://rights.info.yorku.ca/gender-identity-gender-expression-a-guide-for-students-faculty-and-staff/

[2] Cutean, A., Hamoni, R., McLaughlin, R., Ye, Z, "Canada's Growth Currency: Digital Talent Outlook 2023," Information and Communications Technology Council (ICTC), October, 2019, https://www.digitalthinktankictc.com/reports/canadas-growth-currency

People of marginalized genders: the shared ways that trans and cis women, as well as all trans, Two Spirit, gender nonconforming and nonbinary people "experience marginalization due to their genders."[3]

Trans: a person whose life experience includes existing as another gender, in more than one gender, or having been assigned another gender at birth. For example, a trans person can identify as GNC or as a woman.

Trans woman: this report uses trans women to refer to the specific experiences of marginalization that trans women are subject to in contrast to cisgender women.

Two Spirit: refers to a person who has both a masculine and a feminine spirit and is used in some Indigenous cultures to describe sexual orientation, gender, and/or spiritual identity.

Cisgender: denoting or relating to a person whose sense of personal identity and gender corresponds with their birth sex.

LGBTQI2S+: an umbrella terms that stands for Lesbian, Gay, Bisexual, Trans, Queer (or Questioning), Intersex, and Two Spirit.

Woman: a person who identifies as women, including cis and trans women.

[3] Women Against Violence Against Women (WAVAW).

Executive Summary

Technology workers have represented a growing share of Canadian employment over the past 10 years. As of December 2021, there were 1.7 million information and communications technology (ICT) workers employed across all sectors of the economy — around 9% of the total Canadian workforce. These numbers are only expected to increase as the demand for digital skills continues to grow in the digital economy.

In contrast to increasing demand for digital talent, the share of people of marginalized genders in tech remains low (i.e., trans and cis women, and all trans, Two Spirit, gender nonconforming, and nonbinary people). For example, despite making up 47% of Canada's workforce, the share of women in tech has stagnated at less than 30% for the last 10 years. Additional and compounded workplace challenges for women who are Black, Indigenous, and people of colour (BIPOC) in tech occupations further contribute to low levels of gender diversity in the digital economy. Furthermore, while public awareness of gender nonconforming (GNC) people has recently increased along with demands for targeted data collection, the GNC community in tech remains small. These low levels of representation are pervasive, appearing across provincial boundaries as well as internationally in the United States and the European Union.

"...despite making up 47% of Canada's workforce, the share of women in tech has stagnated at less than 30% for the last 10 years."

While gender diversity in the workplace is a complex socio-cultural issue, tech employers can use some simple tools to begin making their recruitment strategies and workplaces more inclusive. **This report combines insights from 80+ conversations with experts and a survey of 240 digital economy employers across Canada as well as a synthesis of gender equity literature to identify key challenges and opportunities for tech employers who want to attract, retain, and support entry- and mid- level tech talent.**

Key employer challenges to and opportunities for gender equity in Canada's digital economy include the following:

Signals, Language, and Employer Branding

Research shows that exclusionary language in job postings and websites that lack sufficient inclusivity signals can reduce the likelihood that gender-diverse job seekers will be attracted to the company. Among other solutions, tech employers can build inclusive websites and refine language in job postings to encourage candidates of marginalized genders to apply.

Finding Candidates Canadian tech employers that are seeking greater gender diversity report difficulties sourcing candidates of marginalized genders. Many factors can push these candidates away, including reliance on inhospitable recruitment and networking events, algorithmic biases in job boards, social media, and talent acquisition software, as well as limited referral networks. To increase gender diversity in the candidate pool, employers can design equitable candidate sourcing techniques and diversify sources.

Interview and Candidate Selection Process

During the interview and candidate selection process, stressful interview techniques and unconscious bias on the part of the hiring committee can reduce the chances of success for gender-diverse job seekers. Employers looking to increase chances of hiring a candidate of marginalized gender can implement changes to mitigate hiring committee bias and increase transparency in the interview process.

Salary Negotiation The "ask gap" refers to women receiving lower wages throughout their careers due to presenting lower "ask salaries" (stating how much they want to make in their next job) when prompted during the salary negotiations. While there is a documented wage gap for GNC tech workers, a lack of data makes it difficult to determine whether GNC tech workers have an "ask gap." Nonetheless, both GNC interviewees and women agreed that building transparency into the salary negotiation process can help improve gender equity in Canada's digital economy.

Leadership Support Lack of real leadership support and leadership support that frames gender inequity as an individual problem rather than a systemic issue, can undermine strategies to increase gender diversity. Aside from ensuring that an organization's culture and accommodations and benefits are inclusive and equitable, leaders must show a real commitment to end systemic gender inequity in tech.

Organization Culture Gender-coded workplace cultures, microaggressions, and systemic biases in promotion processes can contribute to making tech an unwelcoming environment for people of marginalized genders. To mitigate the impacts of these challenges, tech employers can help create a workplace culture that is supportive of differences by developing training and accountability structures to deal with microaggressions and implement procedures to make career advancement opportunities equitable.

Accommodations and Benefits In some workplaces, well-meaning accommodations and benefits policies can undermine gender inclusion efforts. Research shows family care policies, for example, that only include time off for "mothers" can stunt career growth for women and exclude GNC workers from benefits. To support gender-diverse tech workers, employers can create equitable and flexible hours, remote work, and family care policies as well as implement policies that support inclusive health and wellbeing.

As the demand for tech talent continues to grow, Canada's digital economy needs to become more inclusive for both economic and ethical reasons. Organizations that aim to increase gender diversity can use these and other interventions as a starting point for developing their own gender equity strategies.

Introduction

Increasing gender diversity in Canada's digital economy is at once an ethical and economic imperative. As the demand for digitally skilled talent grows and is expected to reach more than 250,000 by 2025,[4] finding solutions to gender-based marginalization becomes more pressing.[5]

People of marginalized genders (i.e., cis and trans women, as well as all trans, Two Spirit, gender nonconforming, and nonbinary people) also need play a greater role in shaping technological innovation. These diverse viewpoints can help businesses avoid common innovation inequities linked to a homogenous tech workforce largely made up of cisgender men.[6]

Beyond ethics and inclusive innovation, increasing gender diversity in tech is good for business. According to a report from McKinsey Global Institute, closing the gender gap in the Canadian economy could add between $150 billion and $420 billion to GDP in 2026.[7] Growing the representation of people of marginalized genders in high-productivity sectors, including technology, is critical to this growth.[8] Businesses that increase gender diversity may also see a slight increase in profit and are more likely to out-perform organizations with a homogenous workforce.[9] Additionally, by sourcing gender-diverse tech talent, organizations can help address growing competition for high-skilled tech workers across sectors.[10]

Despite these economic and ethical incentives, the percentage of people of marginalized genders across Canada's digital economy has remained disproportionately small over the past 10 years.[11] In fact, the number of women in all jobs in the information and communication technology (ICT) sector dropped by almost 1% in 2021 to 31% from 32.1% in 2012.[12]

As companies aim to increase gender equity across the board, it is important to identify the best strategies for employers to attract, retain, and support entry- and mid- level tech workers.[13]

[4] Maryna Ivus, et al. "Onwards and Upwards - Digital Talent Outlook 2025", Information and Communications Technology Council (August 2021), https://www.digitalthinktankictc.com/reports/onwards-and-upwards

[5] Bretton Fosbrook, "Working beyond the Gender Binary," Gender and the Economy, last modified October 2019, https://www.gendereconomy.org/working-beyond-the-gender-binary/

[6] Men whose sex aligns with their gender at birth, male.

[7] Sandrine Devillard et al. "The Power of Parity: Advancing Women's Equality in Canada," McKinsey and Company (2017), https://www.mckinsey.com/~/media/mckinsey/featured%20insights/women%20matter/the%20power%20of%20parity%20advancing%20womens%20equality%20in%20canada/mgi-the-power-of-parity-advancing-womens-equality-in-canada-full-report.pdf.

[8] Ibid.

[9] Elaine Montilla, "Top Three Reasons We Need More Women in Tech," Forbes (blog), May 2020, https://www.forbes.com/sites/forbestechcouncil/2020/03/10/top-three-reasons-we-need-more-women-in-tech/?sh=69b7b30715fb

[10] Maryna Ivus, et al. "Onwards and Upwards - Digital Talent Outlook 2025", Information and Communications Technology Council (August 2021), https://www.digitalthinktankictc.com/reports/onwards-and-upwards

[11] At the time of writing there is no data on nonbinary people; Labour Force Survey (LFS) monthly data, 2021, Statistics Canada; ICTC calculations.

[12] Statistics Canada, Labour Force Survey (LFS), monthly data, 2021, analysis by Information and Communications Technology Council (ICTC), https://www150.statcan.gc.ca/n1/en/catalogue/71M0001X

[13] Florian Haarhaus, "The 2020 Tech Workforce: A Bespoke Approach for Gen Z," It Pro Portal (blog), December 2019, https://www.itproportal.com/features/the-2020-tech-workforce-a-bespoke-approach-for-gen-z/

To pinpoint key challenges and opportunities, the Information and Communications Technology Council (ICTC) engaged 80+ tech workers and employers across Canada through a mixture of provincial focus groups, key informant interviews (KIIs) with hard-to-reach populations (such as trans and nonbinary tech workers), targeted workshops with student transition experts and equity diversity and inclusion (EDI) recruitment specialists focused on tech, and a survey of over 240 tech employers across Canada.

While acknowledging the need for specific interventions to increase gender diversity in senior and leadership roles, this report spotlights business-minded approaches to increase the representation of entry- and mid- level tech workers in Canada.

The report is structured as follows:

- **Section I** explores gender diversity in tech and shows that, despite economic variables, the issues of gender diversity in the tech sector are similar across Canada and internationally. It also highlights important data gaps in Canada related to nonbinary and gender nonconforming people and women with intersectional identities.

- To help address representation gaps, **Section II** explores key challenges and opportunities for tech employers looking to attract, retain, and support people of marginalized genders. It also identifies common trends for successful interventions, including genuine commitment from leadership and tailoring diversity solutions to employee needs.

- Finally, **Section III** offers a concise summary of these opportunities in the form of a customizable employer guide, combined with more explicit guidance on how an employer would leverage this guidance to create their own tools or resources.

This research is part of ICTC's *Ambassador Program*, an initiative that works with industry leaders to increase the representation of marginalized genders in tech. Importantly, while this report emphasizes employer interventions, improving gender diversity in tech is a much larger topic that comprises early education to gendered socialization throughout a person's career,[14] so business actions are just one piece in a larger puzzle.

[14] Sandrine Devillard et al. "The Power of Parity: Advancing Women's Equality in Canada," McKinsey and Company (2017), https://www.mckinsey.com/~/media/mckinsey/featured%20insights/women%20matter/the%20power%20of%20parity%20advancing%20womens%20equality%20in%20canada/mgi-the-power-of-parity-advancing-womens-equality-in-canada-full-report.pdf Sandrine Devillard et al. "The Power of Parity: Advancing Women's Equality in Canada," McKinsey and Company (2017), https://www.mckinsey.com/~/media/mckinsey/featured%20insights/women%20matter/the%20power%20of%20parity%20advancing%20womens%20equality%20in%20canada/mgi-the-power-of-parity-advancing-womens-equality-in-canada-full-report.pdf

Section I:
Understanding Gender in Canada's Tech Ecosystem

Defining Gender Identity and People of Marginalized Genders

Gender is broadly thought of as a person's socially and individually constructed identity, which may be shaped by society's interpretation of an individual's biological sex.

The distinction between gender and sex has a long history in feminist theory, though not all contemporary writers agree that it remains a useful distinction, in part because of its implication that sex classification is wholly biological and not influenced by social norms.[15] This report recognizes the plurality of definitions of gender and offers a flexible interpretation of the term so as to avoid known harms.[16] For example, many contemporary definitions differentiate between biological sex (male, female, intersex) and gender, but some still confuse gender identity, the felt sense and experience of gender, with modes of gender expression, including speech and dress. This confusion can reinforce the gender binary (a system of classification in which all people are categorized as "men" and "women") by excluding other gender identities that do not fit in the binary, such as nonbinary, gender fluid, and Two Spirit individuals.[17]

Building upon previous research and recent actions from the federal government to highlight gender-inclusive analysis,[18] this report adopts the United Nations High Commissioner for Human Rights' use of gender identity, as each person's "internal and individual experience of gender, which may or may not correspond with the sex assigned at birth, including the personal sense of the body (which may involve, if freely chosen, modification of bodily appearance or function by medical, surgical, or other means) and other expressions of gender, including dress, speech and mannerisms."[19]

[15] Mari Mikkola, "Feminist Perspectives on Sex and Gender," The Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta, (Stanford: Metaphysics Research Lab, 2022), https://plato.stanford.edu/archives/sum2022/entries/feminism-gender/

[16] Modernizing the Government of Canada's Sex and Gender Information Practices: Summary Report," Treasury Board of Canada Secretariat (2018), https://www.canada.ca/en/treasury-board-secretariat/corporate/reports/summary-modernizing-info-sex-gender.html

[17] For instance, a 2018 review by the Treasury Board of Canada Secretariat found that "the government's current approach to sex and gender information may [contribute] to challenges faced by transgender (sp.), non-binary, and two-spirit individuals";"Modernizing the Government of Canada's Sex and Gender Information Practices: Summary Report," Treasury Board of Canada Secretariat, 2018, https://www.canada.ca/en/treasury-board-secretariat/corporate/reports/summary-modernizing-info-sex-gender.html; Arjee Javellana Restar et al. "Expanding Gender-Based Health Equity Framework for Transgender Populations," Transgender Health 6, no. 1 (February 2021): 1–4, https://doi.org/10.1089/trgh.2020.0026

[18] "Modernizing the Government of Canada's Sex and Gender Information Practices: Summary Report," Treasury Board of Canada Secretariat, 2018, https://www.canada.ca/en/treasury-board-secretariat/corporate/reports/summary-modernizing-info-sex-gender.html

[19] "Preambule – Yogyakartaprinciples.Org," accessed March 19, 2022, https://yogyakartaprinciples.org/preambule/

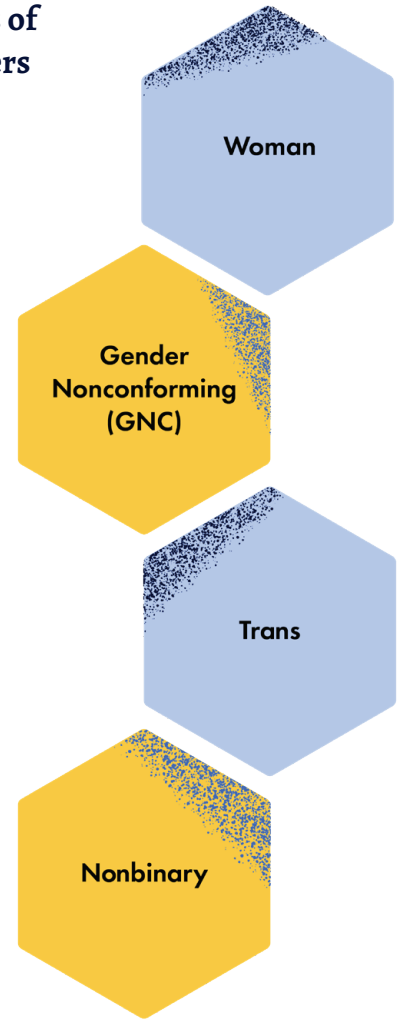
Some individuals experience marginalization based on their gender identity more than others. A large body of research shows that trans and cis women, trans, Two Spirit, gender nonconforming and nonbinary people experience gender-based marginalization more often and intensely than cis gender white men.[20] These experiences of gender-based marginalization also vary based on factors such as race, ethnicity, nationality, social class, religion, sexual orientation, and ability.[21] To support an intersectional analysis, this report uses the term "**people of marginalized genders**" (introduced by the organization Women Against Violence Against Women [WAVAW]) to refer to the shared ways in which trans and cis women, trans, Two Spirit, gender nonconforming and nonbinary people "experience marginalization due to their genders."[22]

[20] For example: Skylar Davidson. "Gender Inequality: Nonbinary Transgender People in the Workplace," ed. Jamie Halsall, *Cogent Social Sciences* 2, no. 1 (2016): 1236511, https://doi.org/10.1080/23311886.2016.1236511.; Tiffany Burns et al., "Women in the Workplace 2021," McKinsey and Company (2021), https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace

[21] "Women and Gender Equality Canada: Gender-Based Analysis Plus Resources," *Gender-Based Analysis Plus Research Checklist*, accessed December 2021, https://women-gender-equality.canada.ca/en/gender-based-analysis-plus/resources/research-checklist.html

[22] Despite this aim, this report sometimes fails to capture the nuance of different gender identities because of the lack of data and research available on a national and provincial level; "What Do We Mean by 'People of Marginalized Genders'?" *WAVAW Rape Crisis Centre*, accessed January 2022, https://www.wavaw.ca/what-do-we-mean-by-people-of-marginalized-genders/

A Sample of Gender Identities of People of Marginalized Genders



A person who identifies as a woman including cisgender and trans women.

A person whose life experience includes existing as another gender, in more than one gender, or being assigned the wrong gender at birth. For example, a trans person can identify as GNC or as a woman.

A person whose life experience includes existing as another gender, in more than one gender, or being assigned the wrong gender at birth. For example, a trans person can identify as GNC or as a woman.

A person whose gender identity is in between or beyond "man" or "woman," or who has no gender either permanently or for some of the time.

Figure 1: Key gender identity terms.
Source: York University and EDI consultation, 2022.

Defining Working in Tech

Working in technology encompasses many sectors because of the increased presence of technology across all facets of society.

To formally define working in technology, ICTC uses 30 National Occupational Classification (NOCs) codes and 18 North American Industry Classifications (NAICS) codes to identify people working in technology occupations across the total economy (like software developers, data analysts, etc.) as well as people working at technology companies in non-technology roles (for example, a Human Resources manager for a technology firm). In the latter case, a person who does not have a "technology background," strictly speaking.

Gender Diversity in Tech Globally and in Canada

Representation of Gender Nonconforming and Nonbinary People

For the past 10 years, public awareness of gender nonconforming (GNC) people has increased substantially.[23]

Today, it is more common for academic studies and newspaper articles on gender oppression to include a disclaimer that gender is not binary, and to mention terms like nonbinary and gender fluid.[24]

Nonetheless, due to historic marginalization, the data on the representation of GNC people in tech remains limited.[25] According to Statistics Canada, the information that does exist comes from "academic studies conducted in specific fields (e.g., health) and… cannot be easily disaggregated by sociodemographic characteristics or geographic areas."[26] This limitation makes it difficult to create robust analyses of the GNC population working in tech.[27] Moreover,

[23] "Sex at Birth and Gender: Technical Report on Changes for the 2021 Census," *Statistics Canada* (2020), https://www12.statcan.gc.ca/census-recensement/2021/ref/98-20-0002/982000022020002-eng.cfm

[24] Nat Thorne, et. al. "The Terminology of Identities between, Outside and beyond the Gender Binary – A Systematic Review," *The International Journal of Transgenderism* 20, no. 2–3 (2019): 138–54. https://doi.org/10.1080/15532739.2019.1640654

[25] "Sex at Birth and Gender: Technical Report on Changes for the 2021 Census," *Statistics Canada* (2020), https://www12.statcan.gc.ca/census-recensement/2021/ref/98-20-0002/982000022020002-eng.cfm

[26] Ibid.

[27] At the time of writing there are no official statistics available on the number of gender nonconforming people in Canada or in tech. Unofficial statistics from the 2019 census estimate that nonbinary people make up 0.07% of the Canada's population. For people under 35 this number is three times higher: 0.11%. Including trans people, estimates rise to 0.35%; "Sex at Birth and Gender: Technical Report on Changes for the 2021 Census," *Statistics Canada* (2020), https://www12.statcan.gc.ca/census-recensement/2021/ref/98-20-0002/982000022020002-eng.cfm

since available gender data is typically self-reported, the actual representation of GNC employees may be higher than anticipated due to the lack of, or false, reporting to avoid potential discrimination.[28] Despite these data constraints, a few analyses have shed light on a small community of GNC people working in tech. Cord—a messaging tool that connects technical talent with hiring teams in London, New York, and Europe—is one tech organization that tracks demographics for genderqueer and nonbinary workers. In their January 2022 analysis, Cord found that 83.68% of the engineers on their site are men, 16.25% are women, and 0.08% are genderqueer and nonbinary. [29] Stack Overflow's 2021 survey of users found comparable rates: gender nonconforming, nonbinary, and genderqueer users represent 1.24% of total respondents; self-defining respondents ("in my own words") represent 0.92%; and trans respondents represent 1%.[30] These numbers are slightly higher for developers specifically, with GNC, nonbinary, and genderqueer respondents representing 1.26% of survey respondents (see Figure 1).[31] To the best of the authors' knowledge, no comparable tech-focused demographic studies currently exist in Canada for GNC or Two Spirit individuals.[32]

[28] "Sex at Birth and Gender: Technical Report on Changes for the 2021 Census," *Statistics Canada* (2020), https://www12.statcan.gc.ca/census-recensement/2021/ref/98-20-0002/982000022020002-eng.cfm

[29] It is important to note that "engineers using cord are required to have experience working a technical or product role in a technology company in the UK, EU or US, with the majority of people being Software Engineers;" Dan McEvoy, "*Gender Representation among Engineers*," Cord Insights (blog), January 2022, https://cord.co/insights/diversity-and-inclusion/articles/gender-representation

[30] Stack Overflow's analysis does not differentiate between trans men and women; "Stack Overflow Developer Survey 2021," *Stack Overflow* (2021), https://insights.stackoverflow.com/survey/2021/?utm_source=social-share&utm_medium=social&utm_campaign=dev-survey-2021

[31] "Stack Overflow Developer Survey 2021," *Stack Overflow* (2021), https://insights.stackoverflow.com/survey/2021/?utm_source=social-share&utm_medium=social&utm_campaign=dev-survey-2021

[32] By the end of 2022, StatCan plans to release demographic data that includes statistics of GNC people, which will support a more robust analysis of GNC workers in tech.

Representation of GNC Engineers and Developers, 2021

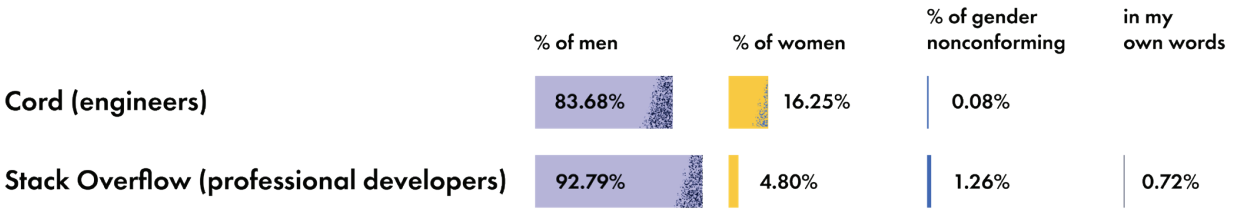


Figure 2: Representation of GNC Engineers and Developers (% of respondents) in 2021 from Cord and Stack Overflow. Source: Compilation of self-reported company data by ICTC, 2022.

First-person accounts in articles, Twitter threads, subreddits, and Slack channels, as well as an increase of GNC-focused and inclusive tech events, suggest that the GNC tech community is growing. For example, a 2021 ABC News reported that despite the lack of data, there is "a vibrant, engaged, and increasingly vocal" tech community made up of trans, nonbinary, gender fluid, and other GNC tech workers.[33] In a recent interview, a nonbinary Data Science Manager confirmed that while tech still has a long way to go, "there have been positive signs of progress" in GNC visibility and acceptance.[34] This small GNC community is becoming more visible and connected with the emergence of U.S. conferences and platforms over that past seven years that highlight the experience of GNC people in the tech sector. Such platforms include Non Binary in Tech,[35] TransTech,[36] LGBTQ in Technology,[37] and Out in Tech.[38]

[33] Samara Lynn, "Transgender in Tech: More Visibility but Obstacles Remain," *ABC News* (March 2021), https://abcnews.go.com/Business/transgender-tech-visibility-obstacles-remain/story?id=76374628

[34] "Building a More Inclusive Environment for Non-Binary People in Tech: Insights from Serge's Journey," *OLX Group Careers Blog* (blog), March 31, 2021, https://medium.com/olx-group-careers/building-a-more-inclusive-environment-for-non-binary-people-in-tech-insights-from-serges-journey-1dd894fb0634

[35] Non Binary in Tech (@nonbinarytech), Twitter, accessed April 4, 2022, https://twitter.com/nonbinarytech

[36] "TransTech Social Enterprises," *TransTech Social Enterprises*, accessed April 4, 2022, https://transtechsocial.org/

[37] "Welcome - The LGBTQ in Technology Slack," Slack, accessed April 4, 2022, http://lgbtq.technology/

[38] "Events," *Out In Tech*, accessed April 4, 2022, https://outintech.com/events/

Representation of Women

Internationally

Women in the tech workplace are underrepresented compared with cis gender men worldwide.[39] For example, Deloitte's 2020 analysis of 20 large technology companies in the U.S. found that although women hold just under 60% of professional occupations the U.S., on average women represent only 31.5% of the total workforce in tech companies (technology and non-technology roles).[40] Indeed, Silicon Valley's gender gap is so notorious that achieving gender parity is often referred to as the "Dave Rule": if a tech start-up employs as many women as men named Dave, then then it has achieved "an acceptable gender balance."[41] Self-reported data from TrustRadius' 2021 survey corroborates these low estimates: 72% of women in technology and non-technology roles at the surveyed U.S. tech companies reported that men outnumber them in meetings by a minimum 2:1 ratio, while 26% reported a 5:1 or more ratio.[42] Numerous studies credit these ratios to fewer women choosing technical fields because of exposure to normative gender roles from a young age and a lack of women role models in tech.[43] Other barriers, including inhospitable work environments and bias in the hiring process, have been shown to further exacerbate this gap (see **Section II** for more detail).[44]
The gender gap is even more pronounced for technology roles in tech companies. For example, Deloitte found that the number of women at

[39] ICTC was unable to find reliable international data on the digital economy.

[40] Susanne Hupfer et al. "Deloitte Insights," *Women in the Tech Industry: Gaining Ground, but Facing New Headwinds* online, December 2021, https://www2.deloitte.com/xe/en/insights/industry/technology/technology-media-and-telecom-predictions/2022/statistics-show-women-in-technology-are-facing-new-headwinds.html

[41] Rory Carroll, "Sexism in Silicon Valley: Tinder, the 'Dave Rule' and Tech's Glass Ceiling," *The Guardian*, 2014, https://www.theguardian.com/technology/2014/jul/02/silicon-valley-sexism-tinder-culture-women-ageism

[42] Elizabeth Sullivan-Hasson, "TrustRadius 2021 Women in Tech Report," *TrustRadius*, March 2021, https://www.trustradius.com/buyer-blog/women-in-tech-report

[43] Viet Vu, et al. "Who Are Canada's Tech Workers?", *Brookfield Institute* (2019), https://brookfieldinstitute.ca/wp-content/uploads/FINAL-Tech-Workers-ONLINE.pdf; Elaine Montilla, "Top Three Reasons We Need More Women in Tech," *Forbes* (blog), May 2020, https://www.forbes.com/sites/forbestechcouncil/2020/03/10/top-three-reasons-we-need-more-women-in-tech/?sh=69b7b30715fb

[44] Anna Vitores et al. "The trouble with 'women in computing': a critical examination of the deployment of research on the gender gap in computer science," *Journal of Gender Studies* 25, no. 6 (2016): 666-680, doi: 10.1080/09589236.2015.1087309.

U.S. tech companies drops from 31.5% to 23.1% when parsed by technology roles.[45] Self-reported 2021 demographic data from six major U.S. tech companies shows a similar decrease in gender diversity for women in technology roles compared to women in the total workforce.[46]

[45] Susanne Hupfer et al. "*Women in the Tech Industry: Gaining Ground, but Facing New Headwinds*," Deloitte Insights, December 01, 2021, https://www2.deloitte.com/xe/en/insights/industry/technology/technology-media-and-telecom-predictions/2022/statistics-show-women-in-technology-are-facing-new-headwinds.html

[46] Compilation of self-reported company data by ICTC, 2022.

Representation of Women in Global Tech Companies

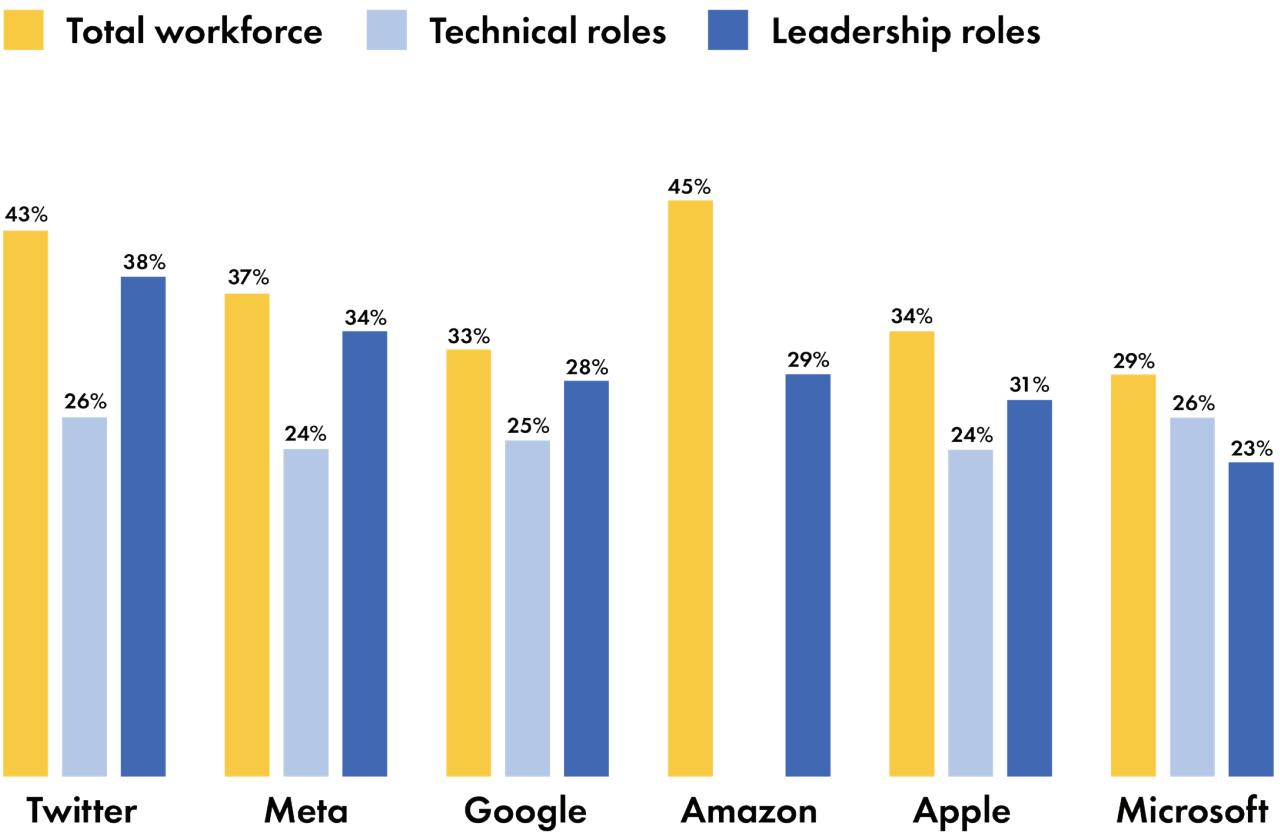


Figure 3: Percentage of women employees in global tech companies by total workforce, technical roles, and leadership roles in 2021 (**Data for technical roles at Amazon is not available**). Source: Compilation of self-reported company data by ICTC, 2022.

In addition to low levels of gender diversity in the tech sector, there are also fewer women than men in technology occupations in all sectors (e.g., healthcare, finance) internationally.[47] According to the World Economic Forum's (WEF) 2021 Global Gender Gap Report, women make up only 14% of the cloud computing workforce and 20% of the engineering workforce globally.[48] Research from the European Union, such as the 2021 Women in Digital Scoreboard, also shows that on average there are almost four times more men who are employed as ICT specialists than women.[49]

Because women of colour are subject to racialized and gendered marginalization, BIPOC (Black, Indigenous, and people of color) women tend to represent an even smaller percentage of tech workers than white women.[50] For example, a 2021 analysis from the National Center for Women & Information Technology (NCWIT) analysis found that while 26% of the computing workforce are women, 14% of these women are white, whereas only 7% are Asian, 3% are Black or African American, and 2% are Hispanic or Latina. Another study by McKinsey and Company found that Black, Latina, and Native American women in the U.S. make up around 4% of the computing workforce.[51] Research from the Anita Borg Institute for Women and Technology corroborates these results, finding that white and Asian women represent the highest portion of tech workers (14.2% and 9.6% respectively), followed by 2.2% Black, 1.7% Latinx, 0.7% multiracial, and 0.1% Native American and Pacific Islander women.[52]

Since disaggregated data is difficult to source for queer women and women with disabilities, representation estimates are often unreliable or unavailable. While the 2021 Stack Overflow Survey does not analyse by gender and sexuality, the precise sexuality categories can help shed some light on representation: 84.52% of developers identify as straight or heterosexual, 5.36% bisexual, 2.39% gay or lesbian, 1.5% as queer.[53] These numbers decrease slightly when limited to professional developers.[54] According to the consulting firm McKinsey report, *Women in the Workplace*, vQ2+ women are generally more underrepresented than women in America's largest corporations.[55] ICTC could not find any national-level intersectional data on women with disabilities in tech.

[47] According to the future skills analysis from the World Economic Forum's (WEF) 2021 Global Gender Gap Report, women make up only 14% of the cloud computing workforce, 20% of the engineering workforce, and 32% of the data and AI workforce globally; "Global Gender Gap Report 2021," *World Economic Forum* (March 2021), https://www3.weforum.org/docs/WEF_GGGR_2021.pdf

[48] "Global Gender Gap Report 2021," *World Economic Forum* (March 2021), https://www3.weforum.org/docs/WEF_GGGR_2021.pdf

[49] "Digital Economy and Social Index: Analyse one indicator and compare breakdowns," *European Commission* online, accessed April 2022, https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-breakdowns#chart={%22indicator-group%22:%22wid%22,%22indicator%22:%22wid_sse_icts%22,%22breakdown-group%22:%22bygender%22,%22unit-measure%22:%22pc_ind_emp%22,%22time-period%22:%222020%22,%22ref-area%22:[%22EU%22]}

[50] Yolanda A. Rankin and Jakita O. Thomas, "The Intersectional Experiences of Black Women in Computing," in *Proceedings of the 51st ACM Technical Symposium on Computer Science Education* (New York, NY, USA: Association for Computing Machinery, 2020), 199–205, https://doi.org/10.1145/3328778.3366873

[51] Tracy Nowski et al. "Rebooting representation," *McKinsey and Company* (2019), https://www.rebootrepresentation.org/wp-content/uploads/Rebooting-Representation-Report.pdf

[52] Yamelith Aguilar et al. "Top Companies for Women Technologists: 2020 Key Findings and Insights" *Anita Borg Institute for Women and Technology* (2020), https://4b7xbg26zfmr1aupi724hrym-wpengine.netdna-ssl.com/wp-content/uploads/2020/09/2020-TopCompanies-InsightReport-rFINAL.pdf; Elaine Montilla, "Top Three Reasons We Need More Women in Tech," *Forbes* (blog), May 2020, https://www.forbes.com/sites/forbestechcouncil/2020/03/10/top-three-reasons-we-need-more-women-in-tech/?sh=69b7b30715fb

[53] "Stack Overflow Developer Survey 2021," Stack Overflow (2021), https://insights.stackoverflow.com/survey/2021/?utm_source=social-share&utm_medium=social&utm_campaign=dev-survey-2021

[54] Ibid.

[55] Tiffany Burns et al., "Women in the Workplace 2021," *McKinsey and Company* (2021), https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace

Canada

There are also significantly fewer women working in Canada's digital economy compared to cisgender men. ICTC's 2022 analysis of monthly *Labour Force Survey (LFS)* data from Statistics Canada finds that although women make up 47% of the total workforce, they only account for 28% of all ICT roles in Canada's economy.[56] Specific to the ICT sector, ICTC's analysis finds that women account for 31% of the workforce (technical and non-technical roles), and 21% of all tech roles in the ICT sector.[57] All of ICTC's focus group participants and interviewees noted fewer women in tech than cis men. As one interviewee put it, "*Across the board and especially in tech, I have been the only woman at the table for my entire life. I have never been with a group of women.*" Past ICTC research shows that representation rates for women in tech have remained relatively unchanged over the past 10 years.[58]

[56] Statistics Canada, Labour Force Survey (LFS) monthly data, 2021, analysis by Information and Communications Technology Council (ICTC), https://www150.statcan.gc.ca/n1/en/catalogue/71M0001X; Elaine Montilla, "Top Three Reasons We Need More Women in Tech," Forbes (blog), May 2020, https://www.forbes.com/sites/forbestechcouncil/2020/03/10/top-three-reasons-we-need-more-women-in-tech/?sh=69b7b30715fb

[57] Statistics Canada, Labour Force Survey (LFS) monthly data, 2021, analysis by Information and Communications Technology Council (ICTC), https://www150.statcan.gc.ca/n1/en/catalogue/71M0001X

[58] "Up the Numbers: 2020 Report," *Women in Communications Technology* (2020), wct-upthenumbers-report-2020.pdf

Representation of Women vs. Men in Canada's Digital Economy, 2021

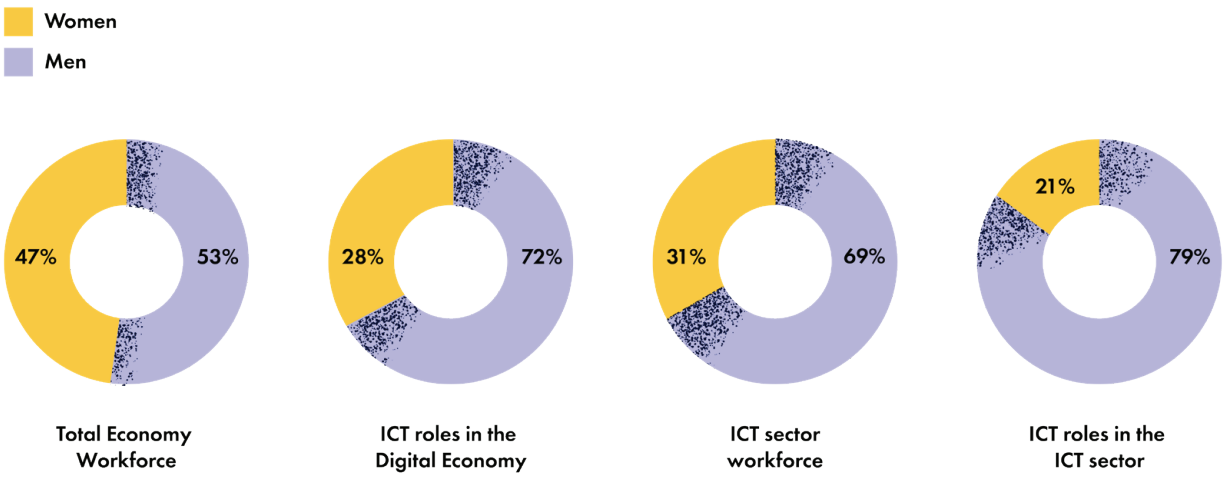


Figure 4: Women representation in the ICT workforce, 2021. Source: LFS Monthly data 2021, Statistics Canada, ICTC calculations.

As with BIPOC, queer, and disabled women in the digital economy internationally, representation is low for women with intersectional identities in Canada. For example, a recent study found that a lower percentage of BIPOC women work in tech occupations in Canada than both white and BIPOC men.[59] One ICTC focus group participants summed up this lack of representation for intersectional identities as follows: "*There are almost no [white] women in tech, let alone nonbinary people or women of colour*." There are no national studies on Indigenous or First Nations women in tech, let alone regional breakdowns; however, studies suggest that only 2.2% of tech professionals are Indigenous [60] despite representing almost 5% of the Canadian population.[61] These numbers are likely lower for Indigenous women in tech.[62] ICTC was unable to find reliable national estimates for disabled women, queer women, or trans women in tech.[63]

Provincial Differences

Canada's digital economies differ by province in economic output, maturity, and sectoral strengths.[64] For instance, **Alberta**'s digital economy employs approximately 196,400 workers and is an established leader in natural resources, cleantech, agricultural technology, and digital media.[65] **Ontario**'s digital economy, on the other hand, employs 996,000 workers, and boasts the highest concentration of ICT businesses in Canada. Industry strengths for the Toronto and Waterloo regions include AI, fintech, blockchain, advanced manufacturing, and robotics. Ottawa's focus is autonomous vehicles, telecommunications, and digital media.[66] **Quebec**'s digital economy employs 524,100 workers and is also a powerhouse for AI and creative technologies.[67] In **Nova Scotia** the digital economy employs 44,1000 workers and the province spearheads Canadian advances in clean tech and ocean-business.[68]

ICTC analyzed gender representation in these four provinces to determine if different approaches to gender equity are necessary for different regions and economies. Despite large economic differences, however, there are similar levels of gender diversity in tech between provinces. According to ICTC's analysis, while women make up 53% of the workforce in Alberta, Ontario, and Quebec, and 50% in Nova Scotia, women in ICT roles only make up 24% of the total digital economy in Quebec and 31% in Alberta. In the ICT sector, women hold between 27% (Nova Scotia) and 35% (Alberta) of roles in this workforce. As with national and international averages, these percentages drop for technical roles, ranging from 17% in Nova Scotia to 22% in Alberta.

[59] Viet Vu, et al. "Who Are Canada's Tech Workers?", *Brookfield Institute* (2019), https://brookfieldinstitute.ca/wp-content/uploads/FINAL-Tech-Workers-ONLINE.pdf
[60] Ibid.
[61] "Statistics on Indigenous Peoples," *Statistics Canada*, accessed March 24, 2022, https://www.statcan.gc.ca/en/subjects-start/indigenous_peoples
[62] "Indigenous Leadership in Technology," *First Nations Technology Council, Information and Communications Technology Council,* and *Reciprocal Consulting*, forthcoming.
[63] In terms of disabled women, and queer women, at the time of writing ICTC was unable to find national research on women with disabilities in Canada's digital economy, despite nearly 2.1 million women (14.9%) aged 15 and over reported having one or more type of disabilities that limited them in their daily activities;"Women with Disabilities," *Statistics Canada Government of Canada*, last modified May 26, 2017, https://www150.statcan.gc.ca/n1/pub/89-503-x/2015001/article/14695-eng.htm
[64] For this study, ICTC focused on four target provinces to determine if different interventions were necessary for different provinces.
[65] Akshay Kotak, "Employment Data: Insights, Statistics, and ICT Job Data across Canada's Regions," *ETalent Canada: Information and Communications Technology Council*, accessed February 2022, www.etalentcanada.ca/employment-data/
[66] Ibid.
[67] Ibid.
[68] Ibid.

Gender Division of ICT Roles in the Total Digital Economy Workforce, 2021

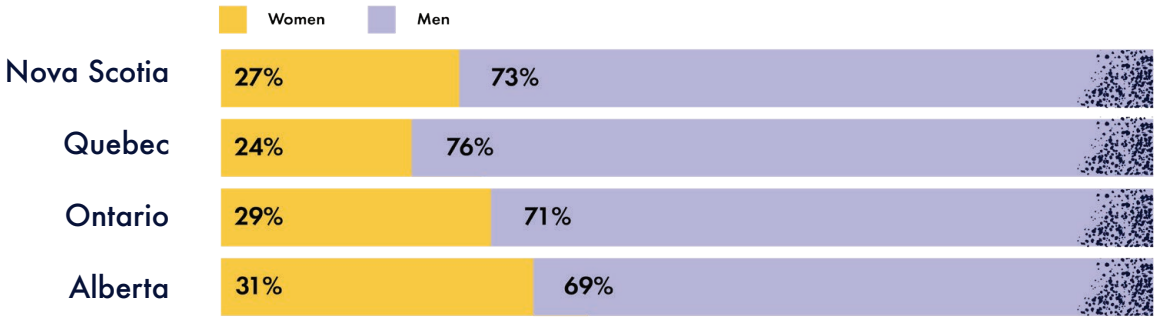


Figure 5: Representation of women in tech across provinces, 2021.
Source: LFS Monthly data, 2021, Statistics Canada, ICTC calculations.

Gender Division of Canadian ICT Sector Workforce, 2021

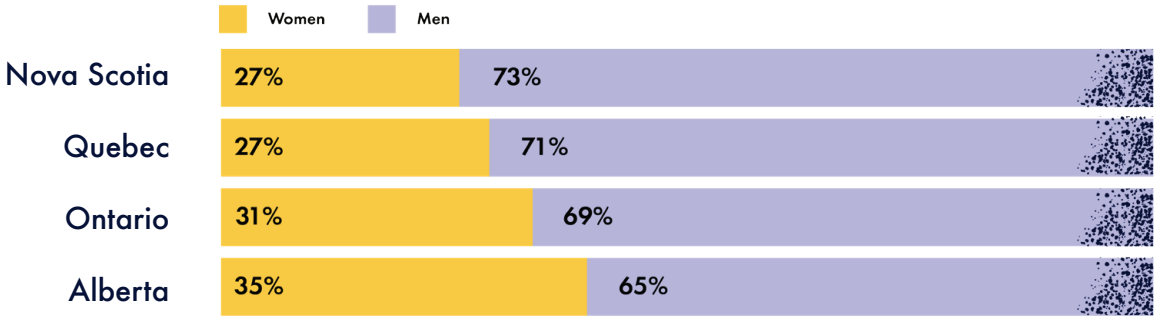


Figure 6: Representation of women in tech across provinces, 2021.
Source: LFS Monthly data, 2021, Statistics Canada, ICTC calculations.

Gender Division of ICT Roles in the Canadian ICT Sector, 2021

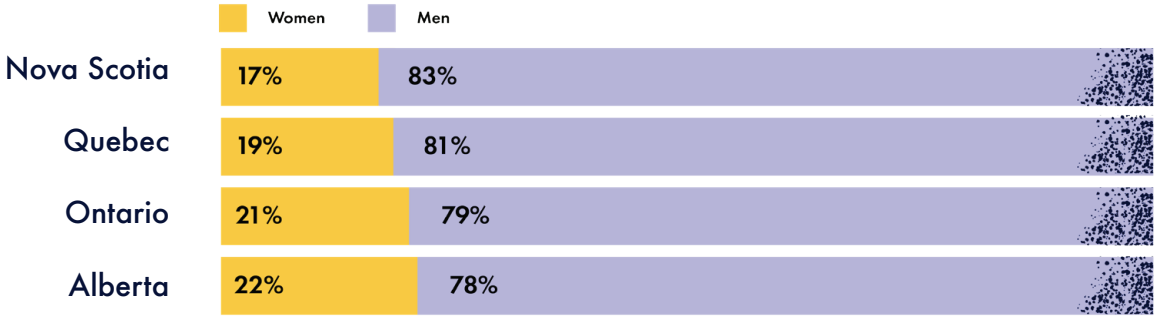


Figure 7: Representation of women in tech across provinces, 2021.
Source: LFS Monthly data, 2021, Statistics Canada, ICTC calculations.

The systemic nature of gender-based marginalization may cause inequities in tech to manifest in similar ways despite geographic differences.[69] In other words, sexism and inequity can create similar challenges to women in tech everywhere.

When asked to discuss provincial differences, ICTC's focus group highlighted nuances in the systemic challenges (discussed in Section II), such as personal differences in networking ("*In Nova Scotia you need to know somebody who knows somebody*"), rather than novel challenges. In addition, most participants stressed that there are more similarities among provinces when it comes to the representation of marginalized genders in tech than differences. As one ICTC focus group participant explained, "It's a systemic problem." Another participant stressed that "*no matter what province you live in*," business solutions to increase gender diversity are the same.

[69] For example see the similarities between the wide range of executives surveyed by the *Harvard Business Review*: Colleen Ammerman et al. "How to Close the Gender Gap," Harvard Business Review, May 1, 2021, https://hbr.org/2021/05/how-to-close-the-gender-gap

Section II:

Attracting, Retaining, and Supporting Gender Equity in Canada's Tech Industry

Diverse Experiences and Shared Strategies

Many technology employers across Canada are interested in improving gender diversity in their organizations, however, there is no silver bullet that will attract and retain people of marginalized genders.

In part, the success of strategies to attract and retain gender-diverse staff vary in efficacy based on factors such as race, ethnicity, nationality, social class, religion, sexual orientation, ability, and gender identity and expression. For example, in addition to recruitment strategies focused on women, women who are also international students looking for their first tech job may need help with permit issues.[70] Alternatively, trans candidates might be more inclined to apply to companies that cover hormone therapy and openly state their alliance to the LGBTQI2S+ community in their job posting.[71] Or, as one ICTC focus group participant noted, "*If you have a woman with disabilities* [applying for work], *it's important to have accessibility in the interview process.*"

Individual experiences of and reactions to gender-based challenges in the tech workforce also differ.[72] For example, one focus group participant noted that certain BIPOC employees "*do not even notice [they] are the only person of colour in the room, because [they] just enjoy doing [their] job.*" Conversely, other women, BIPOC employees spoke openly about the barriers they face in the workplace during focus groups.

[70] Everton Ellis, "'Seamless' Transition to Citizenship? International Student Graduates, Race, and Structural Inequities in Canada's (Im)Migration-Labour Market" *University of Toronto* (Thesis, 2019), https://tspace.library.utoronto.ca/handle/1807/97444

[71] ICTC 2022 interviews and secondary research including: "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada* (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

[72] Tiffany Burns et al., "Women in the Workplace 2021," *McKinsey and Company* (2021), https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace

"There are very few women of colour, and there are very few Indigenous women in tech. And that's not because we are not capable. It is not because we are not smart and intelligent, and it's not because we don't have good ideas. It's because we've always been told we shouldn't be there."

"There are multiple layers. You just get layers of glass ceilings, or not even glass, sometimes the ceiling is metal. So, women who are BIPOC will have a far harder time than white women."

Experiences of gender-based challenges may also vary based on a variety of factors for GNC tech talent. For example, one analysis from the U.S. National Transgender Discrimination Survey found that, compared to white peers, Black nonbinary employees typically face more barriers in the workplace than white nonbinary individuals (across all sectors).[73]

Despite these important differences, experiences of gender-based marginalization often overlap, as do the strategies that businesses can use to remedy these challenges.[74] The following section breaks down key challenges for tech employers identified during consultation with 80 experts and presents relevant opportunities to improve gender diversity. Throughout, ICTC highlights how the experience of gender-based marginalization may differ for GNC people and women with intersectional identities, at times requiring different process and policy modifications. Readers can either read through this section for a detailed analysis of key challenges and opportunities or skip to the sections that interest them most using the hyperlinks in Figure 8.

[73] Skylar Davidson, "Gender Inequality: Nonbinary Transgender People in the Workplace," ed. Jamie Halsall, *Cogent Social Sciences* 2, no. 1 (December 31, 2016): 1236511, https://doi.org/10.1080/23311886.2016.1236511

[74] Cherrie Lam et al. "Canada's Gender Equity Roadmap: A Study of Women in Tech," *Women in Tech World* (October 2018), https://issuu.com/womenintechworld/docs/wintechreportoct1_2018_low_rez; Skylar Davidson, "Gender Inequality: Nonbinary Transgender People in the Workplace," ed. Jamie Halsall, Cogent Social Sciences 2, no. 1 (2016): 1236511, https://doi.org/10.1080/23311886.2016.1236511

Tech Employer Challenges and Opportunities for Supporting Candidates of Marginalized Genders

Figure 8: Challenges before hiring and in the workplace for tech employers who want to support candidates of marginalized genders.
Source: ICTC consultations and secondary literature review.

Hiring and Recruitment

The hiring process consists of a "cumulative series of small decisions."[75] These conscious and unconscious employer choices can help determine their success in attracting gender-diverse candidates.

According to ICTC's survey of 240 senior representatives in digital economy companies across Canada, tech employers agree that targeted hiring and recruitment strategies can make a real difference in efforts to increase gender equity in tech. Specifically, the survey found that 58% of respondents (57% men and 60% women) agree that recruitment strategies targeted at women in tech are important. In practice, however, only 10% of respondents (12% men and 8% women) had implemented targeted recruitment strategies.[76] Pride at Work's report Hiring Across All Spectrums identifies a high demand for inclusive recruitment among LGBTQ2IS+ survey respondents but also finds that Canadian employers could improve their inclusive hiring practices.[77]

The disparity between employer inclusivity aspirations and low implementation levels of strategies to achieve inclusivity may point to a need for more knowledge or support.[78] To help shed light on effective strategies, this section highlights how employers can make website branding, job posting, candidate recruitment, interviewing, and salary negotiation more inclusive for people of marginalized genders.

[75] Miranda Bogen et al. "Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias," *Upturn* (2018), https://apo.org.au/node/210071

[76] This survey was developed before consultation began for this report. As a result, it unfortunately did not include questions about GNC tech workers or questions about BIPOC women, women with disabilities, or women with other intersectional identities.

[77] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada* (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf8

[78] Anonymous (gender equity expert), in ICTC advisory committee, November 2021.

Key Challenge Areas Before Hiring

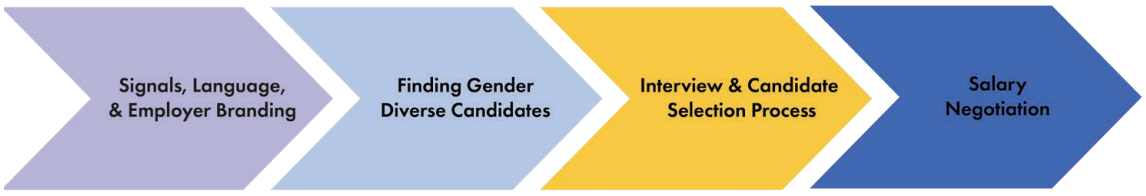


Figure 9: Key Challenge Areas Before Hiring.

Challenge: Signals, Language, and Employer Branding

The first contact a prospective employee has with an organization is often via the website or the job posting.

The employee's impression will depend on employer branding, language use, and other signals such as lists of required work skills.[79] For instance, without inclusive employer branding on websites (e.g., featured articles highlighting diverse employees, employee equal opportunity (EEO) statements, etc.), people of marginalized genders may feel less inclined to apply.[80] Using masculine-coded language on job postings can also make jobs less appealing to women.[81] Research shows that although using words like "excellence" or "competitive" in job postings can seem innocuous, they can signal that employers value "raw talent over growth," which can dissuade candidates of marginalized genders from applying.[82] Additionally, lengthy lists of requirements in job postings can discourage people of marginalized genders from applying.[83] According to LinkedIn's Gender Insights Report, women are 16% less likely than men to apply to a job, and they apply to 20% fewer jobs than men.[84] Tech employers that want to receive or increase applications from gender-diverse candidates should consider reworking their branding, language use, and signals.

Opportunity: Building Inclusive Websites

Tech employers can use to re-code their website branding as inclusive while showcasing tangible commitments to gender equity. Highlighting diverse representation on the "About" page or Human Resources (HR) page with employee profiles is an easy first step. Several studies show that marginalized populations "experience a sense of 'perceived fit,' imagining themselves as belonging socially and being able to succeed in that setting," when they see people with similar identities featured on organizations' websites.[85] One U.S. study on gender gaps in science, technology, engineering, mathematics (STEM), for example, found that adding featured articles about Black women scientists on organization websites heightens a sense of

[79] Varied definitions for employer branding exist, but most definitions highlight organizational aims to "convey a desirable image to the outside as well as to the internal organization"; Karsten Jonsen et al., "Diversity and Inclusion Branding: A Five-Country Comparison of Corporate Websites," *International Journal of Human Resource Management* 32, no. 3 (February 4, 2021): 616–49, https://doi.org/10.1080/09585192.2018.1496125

[80] Karsten Jonsen et al., "Diversity and Inclusion Branding: A Five-Country Comparison of Corporate Websites," *International Journal of Human Resource Management* 32, no. 3 (February 4, 2021): 616–49, https://doi.org/10.1080/09585192.2018.1496125

[81] Danielle Gaucher et al. "Evidence That Gendered Wording in Job Advertisements Exists and Sustains Gender Inequality," *Journal of Personality and Social Psychology* 101, no. 1 (2011): 109-128, https://psycnet.apa.org/buy/2011-04642-001; "Men showed no difference in anticipated belonging based on either masculine or feminine wording"; Danielle Gaucher et al. "Evidence That Gendered Wording in Job Advertisements Exists and Sustains Gender Inequality," *Journal of Personality and Social Psychology* 101, no. 1 (2011): 109-128, https://psycnet.apa.org/buy/2011-04642-001; ICTC's advisory committee stressed that this language bias in job postings is not the fault of the HR team, but rather a result of unconscious bias from a "*longstanding system of oppression*"; Anonymous (gender equity expert), in ICTC advisory committee, November 2021.

[82] "Boost Your Talent Brand," *Textio* (blog), accessed January 2022, https://textio.com/products/

[83] Ibid.

[84] Deanne Tockey et al. "Gender Insights Report: How Women Find Jobs Differently," *LinkedIn Talent Solutions* (2019), https://business.linkedin.com/content/dam/me/business/en-us/talent-solutions-lodestone/body/pdf/Gender-Insights-Report.pdf

[85] Christina M. Scott-Young, et al. "Construction Industry Inclusive Branding: Attracting Nontraditional Talents," *Australasian Universities Building Education Association Conference*, (2021), https://www.researchgate.net/profile/Biyanka-Ekanayake/publication/356189613_Technical_challenges_for_automated_indoor_construction_progress_monitoring/links/61ad4541092e735ae2e4e055/Technical-challenges-for-automated-indoor-construction-progress-monitoring.pdf#page=643

[86] Evava S. Pietri et al. "One Size May Not Fit All: Exploring How the Intersection of Race and Gender and Stigma Consciousness Predict Effective Identity-Safe Cues for Black Women," *Journal of Experimental Social Psychology* 74 (2018): 291–306, https://doi.org/10.1016/j.jesp.2017.06.021.

belonging and trust for Black women applicants.[86] Likewise, numerous interviewees and focus group members highlighted that it is important for applicants to "*see people who are similar to themselves represented at different levels of the company.*" Other participants recall screening the companies by scanning the "People" tab on LinkedIn to assess the level of workforce diversity. One ICTC participant specified "*intersectional aspects figure into it, too; if you're a racialized woman, if you're a trans woman, do you see yourself reflected in the company?*"

"... if you're a racialized woman, if you're a trans woman, do you see yourself reflected in the company?"

Other signals for an equitable workforce can include "references to valuing diversity, having a global workforce community, being an equal opportunity employer, and listing advantages associated with diversity in the workplace."[87] Interviewees and focus group members confirm that these surface-level signals can be effective. One of ICTC's nonbinary interviewees, for example, noted that website signals are encouraging: "*Personally, if I did see shout-outs [to valuing nonbinary employees on the website], it would be good. So, it's a green flag for the company if I see something like that.*"[88] Even if these signals "are just window dressing," they "can be important for the strategic hiring process and talent management since they can greatly influence the audience."[89] As a queer ICTC interviewee put it, "*My [tech company] always has stuff about diversity, inclusion, and training on their intranet, and they always have rainbow stuff. It doesn't really do a lot for me, but it's nice that they put it on there.*"

Showcasing deeper commitments to gender equity can further improve efforts to attract candidates of marginalized genders.[90] According to results from a 2022 study, women are more attracted to organizations that "provide credible signals that they are fair and equitable employers."[91] ICTC's interviewees were also quick to point out while "cute rhetoric on the website" is nice, they are more encouraged when "*there is some internal work that's being done.*" Another interviewee questioned, "*[Are you] just putting beautiful photos [of diverse employees] on the website, or are you giving them an opportunity to make changes and decisions?*" "Credible" or "deep" commitments to gender equity can include measures as diverse as financial commitments to EDI causes; Employee Resource Groups (ERGs); and equitable processes for hiring, interviews, and promotions (see After Hiring for more examples).

[87] Wendy J. Casper, et al. "Who Will We Recruit? Targeting Deep- and Surface-Level Diversity with Human Resource Policy Advertising," Human Resource Management 52, no. 3 (2013): 311–32, https://doi.org/10.1002/hrm.21530

[88] It is important to note that ICTC only interviewed four nonbinary participants for this study due to difficulties sourcing candidates. The sample is far too small to be considered representative and the opinions of those sampled should be interpreted only as the experiences of those interviewed. To mitigate this challenge, ICTC made sure all recommendations for GNC individuals are aligned with existing research (when possible, from Canadian LGBTQI2S+ organizations, such as Pride at Work).

[89] Karsten Jonsen et al., "Diversity and Inclusion Branding: A Five-Country Comparison of Corporate Websites," International Journal of Human Resource Management 32, no. 3 (February 4, 2021): 616–49, https://doi.org/10.1080/09585192.2018.1496125

[90] Wendy J. Casper et al. "Who Will We Recruit? Targeting Deep- and Surface-Level Diversity with Human Resource Policy Advertising," Human Resource Management 52, no. 3 (2013): 311–32, https://doi.org/10.1002/hrm.21530.

[91] Mabel Abraham et al. "Congruence Between Leadership Gender and Organizational Claims Affects the Gender Composition of the Applicant Pool: Field Experimental Evidence," Organization Science 33, no. 1 (January 2022): 393–413, https://doi.org/10.1287/orsc.2021.1442

WEALTHSIMPLE is a Canadian online investment management service based in Toronto, Ontario. The "Work With Us" page on their website features a link to their "Culture Manual," which features inclusive language, diverse employee profiles, and processes to which they hold themselves accountable. Further, Wealthsimple showcases concrete actions like its financial investments in the Black Health Alliance, and ERGs with budgets for initiatives such as Women of Wealthsimple, Engineering Women, Mental Health at Wealthsimple, and Rainbow (LGBTQI2S+).

Opportunity: Refining Job Postings

Tech employers seeking to attract more candidates of marginalized genders can analyze their language as well as the statements and requirements they choose to include in job postings.[92] Many free, user-friendly online tools check for biased language. Textio, for example, rates text on a "masculine tone" scale and provides explanations for why words may explicitly or implicitly dissuade applicants of diverse genders.[93] ICTC focus group attendees similarly explained that equitable job posting language is important to attract gender-diverse tech candidates. One noted, "*When we see certain words and descriptive words being used, it really frames the mindset. It shows what this company values. It impacts job seekers.*" Another said, "*When I was looking to transition, I knew I wanted to work for an organization that was serious about embedding EDI, and I was specifically looking to see what language they were using in their postings... it indicates how woke (alert to injustice)[94] people are when they're intentional about embedding certain criteria.*" As with website branding, inclusive signals on job postings

[92] Elizabeth K. Eger, "Women and IT: The Facts," National Center for Women and Information Technology (2016), https://www.academia.edu/25601833/Women_and_IT_The_Facts

[93] "Boost Your Talent Brand," Textio (blog), accessed January 2022, https://textio.com/products/

[94] According to Google Definitions from Oxford Languages, "woke" means: "alert to injustice in society, especially racism."; "Woke," Oxford Languages, accessed April 2022, https://www.google.com/search?q=woke&oq=woke&aqs=chrome.0.0i131i433i512j0i433i512j69i59j0i433i512j46i512j0i131i433i512l2j0i512j0i131i433i512j46i131i433i512.1177j0j4&sourceid=chrome&ie=UTF-8

[95] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," Pride at Work Canada (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

must be accompanied by actions to support gender equity.[95] Including inclusive hiring statements, such as EEOs, that reference gender equity or people of marginalized genders may further increase the likelihood of attracting gender-diverse candidates.[96] Respondents from Pride at Work's survey of LGBTQ2+ employees in Canada, for example, stressed the importance of EEO statements that explicitly welcome applicants from the LGBTQ2IS+ community.[97] Other studies show similar links between EEOs and the appeal of job postings to women.[98] Interviewees confirm that EEO statements can "encourage minority applicants to apply for current job vacancies." In practice, these statements can take a variety of forms:

[96] Amanda Klysing et al., "Gender Diversity in Recruitment: Influence of Gender Trouble on Applicant Attraction and Evaluation," Journal of Applied Social Psychology (July 2021), https://doi.org/10.1111/jasp.12809
[97] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," Pride at Work Canada (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf
[98] For example: Lien Wille et al. "When Job Ads Turn You Down: How Requirements in Job Ads May Stop Instead of Attract Highly Qualified Women," Sex Roles 79, no. 7 (October 2018): 464–75, https://doi.org/10.1007/s11199-017-0877-1

- We welcome applications from trans and cis women as well as all trans, nonbinary, Two Spirit, and gender nonconforming individuals; or
- Women, men, and gender nonconforming individuals "have equal opportunity for career advancement with us. To the best of our ability, we try to offer our employees an environment in which they can be themselves."[99]

Aside from inclusive language and statements, to help attract gender-diverse applicants, tech employers can reduce the number of "assets" or "nice-to-haves" in a job description.[100] As one entry-level ICTC interviewee noted, "If I see a master's degree or a long list of 'assets' on the job posting, I won't apply because I probably won't get the job." Contrary to past research that links lower levels of applications to low confidence, a recent survey of American professionals found that women are less likely to apply to jobs than cis men because of misconceptions about how employers assess requirements.[101] Unlike cis men, women are less likely to "see the hiring process as one where advocacy, relationships, or a creative approach to framing one's expertise could overcome not having the skills and experience

[99] Amanda Klysing et al., "Gender Diversity in Recruitment: Influence of Gender Trouble on Applicant Attraction and Evaluation," Journal of Applied Social Psychology (July 2021), https://doi.org/10.1111/jasp.12809
[100] "Tara Sophia Mohr, "Why Women Don't Apply for Jobs Unless They're 100% Qualified," Harvard Business Review (blog), August 2014, https://hbr.org/2014/08/why-women-dont-apply-for-jobs-unless-theyre-100-qualified
[101] Ibid.
[102] Ibid.

sought in the job posting."[102] Reducing the number of "assets" and "nice-to-haves," and instead including only the skill requirements that will actually be used on the job,[103] or posting statements that specify the organization's openness to alternative education and skill backgrounds can bolster the likelihood of receiving applicants from gender-diverse backgrounds.

SHOPIFY INC. is a Canadian multinational e-commerce company headquartered in Ottawa, Ontario. Their job postings include EEOs that encourage applications from specific communities, including "Indigenous peoples, racialized people, people with disabilities, people from gender and/or sexually diverse communities, and/or people with intersectional identities." To connect their EEO to deeper actions, these statements hyperlink to annual Sustainability Reports, which features diversity data and the resources dedicated to mitigating bias, talent acquisition initiatives, and "belonging indexes."

SPOTLIGHT

Signaling Accommodations in the Job Post for People with Disabilities

For entry-level people of marginalized genders with disabilities, hiring process accommodations in the job posting can encourage them to apply. According to a 2019 Canadian study, youth with disabilities said it is important that employers highlight their openness to disability accommodations in the posting or during the interview.[104] In practice, accommodation signals can include flexible workplace practices around physical and mental health,

[103] "Tara Sophia Mohr, "Why Women Don't Apply for Jobs Unless They're 100% Qualified," Harvard Business Review (blog), August 2014, https://hbr.org/2014/08/why-women-dont-apply-for-jobs-unless-theyre-100-qualified

[104] Sally Lindsay et al. "Disability Disclosure and Workplace Accommodations among Youth with Disabilities," *Disability and Rehabilitation* 41, no. 16 (July 31, 2019): 1914–24, https://doi.org/10.1080/09638288.2018.1451926

[105] Ariel E. Schwartz et al. "Anticipating the Outcomes: How Young Adults with Developmental Disabilities and Co-Occurring Mental Health Conditions Make Decisions about Disclosure of Their Mental Health Conditions at Work," *Disability and Rehabilitation* (February 12, 2022): 1–11, https://doi.org/10.1080/09638288.2022.2037749

and noting that "reasonable accommodations can be provided" for the position.[105] When asked what an accessible job posting for a person of marginalized gender(s) would look like, an ICTC interviewee cautioned that "it needs to be confidential because not everybody feels comfortable self-identifying or requesting accommodation. A very basic thing could be, 'If you're seeking accommodation for the interview process, please contact X person.'" During the hiring process, for example, Google offers disclosure opportunities, "extended interview time, breaks between interviews, providing sign language interpreters, CART (Communication Access Realtime Translation) captioning, and making specialized equipment available."[106]

SPOTLIGHT

Making Online Application Forms Inclusive for GNC Candidates

The number of companies that use online forms to screen applicants during the hiring process continues to grow, which can lead to new barriers for trans, nonbinary, and gender nonconforming applicants.[107] For example, a study on trans teenagers in the U.S. shows that having only "male" and "female" options on online job forms can make GNC teens less likely to complete the job application.[108] Another study corroborates that both binary and nonbinary applicants dislike application forms with binary gender options.[109] While no

[106] "Accommodations at Google," *Google Careers*, accessed March 14, 2022, https://careers.google.com/stories/accommodations-at-google/
[107] Morgan Klaus Scheuerman et al., "Revisiting Gendered Web Forms: An Evaluation of Gender Inputs with (Non-)Binary People," *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, CHI '21 (New York, NY, USA: Association for Computing Machinery, 2021), 1–18, https://doi.org/10.1145/3411764.3445742
[108] Anneliese A. Singh, et al. "'I Am My Own Gender': Resilience Strategies of Trans Youth," Journal of Counseling & Development 92, no. 2 (2014): 208–18, https://doi.org/10.1002/j.1556-6676.2014.00150.x
[109] Morgan Klaus Scheuerman et al., "Revisiting Gendered Web Forms: An Evaluation of Gender Inputs with (Non-)Binary People," Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems, CHI '21 (New York: Association for Computing Machinery, 2021), 1–18, https://doi.org/10.1145/3411764.3445742

comparable studies exist in Canada, an ICTC interviewee said that filling out non-inclusive online forms can be a *"personally stressful and uncomfortable process."* To avoid excluding gender nonconforming applicants, interviewees emphasized that tech employers can add *"tiny things to signal that you get it."* For example, easy fixes for online application forms include expanding gender options to GNC, Two Spirit, nonbinary, "prefer to self-describe," and "prefer not to respond" options; specifying that all categories are trans inclusive; having a field to type in pronouns as well as a field in which to type preferred or chosen names to avoid applicants feeling forced to type in their "dead names" (the name used by a trans person prior to transitioning).

Challenge: Finding Gender-Diverse Candidates

Another critical area for tech employers to examine is recruitment. Gender-based marginalization can appear in formal recruitment methods, such as job posting sites or recruitment fairs at universities and colleges. Further, tapping into established informal networks (e.g., through word-of-mouth referrals) can be more difficult for people of marginalized genders.[110] This section examines how human and algorithmic biases manifest in common formal and informal recruitment methods in the tech sector.

Challenges in Finding Candidates: Recruitment and Networking Events

Recruitment and networking events help students find internships and form valuable relationships with industry. However, these events have a common structure and set of social norms that may privilege certain types of interactions and people. Event-based recruitment environments for tech roles and the tech sector have been compared to fraternity houses. Their "geeky masculinity" fosters a "chilly environment" for anyone who is not a straight white cis gender man."[111] For example, one study of tech student recruitment events in U.S. universities details how recruiters offer gendered promotional

[110] Elizabeth K. Eger, "Women and IT: The Facts," National Center for Women and Information Technology (2016), https://www.academia.edu/25601833/Women_and_IT_The_Facts

[111] Alison T Wynn et al. "Puncturing the Pipeline: Do Technology Companies Alienate Women in Recruiting Sessions?," Social Studies of Science 48, no. 1 (2018): 149–64, https://www.jstor.org/stable/48569075?seq=1; Jessi Hempel, "Why Are There Few Women in Tech? Watch a Recruiting Session," Wired (March 2018), https://www.wired.com/story/why-are-there-few-women-in-tech-watch-a-recruiting-session/

[112] Alison T Wynn et al. "Puncturing the Pipeline: Do Technology Companies Alienate Women in Recruiting Sessions?," Social Studies of Science 48, no. 1 (2018): 149–64, https://www.jstor.org/stable/48569075?seq=1

material like T-shirts saying "I like big data and I cannot lie" (playing off of the well-known song "I like big butts and I cannot lie") and notebooks with "Finding your faults, just like your mom" printed on the cover.[112] The study also highlights recruiters making references to a lack of work-life balance (e.g., "Work hard play hard"), and "frequent references to masculine icons" from Stark Trek and Lord of the Rings.[113] Similar social norms can create an "unwelcoming culture" for people of marginalized genders in hackathons and game jams, resulting in low levels of gender diversity at these events.[114] Specifically, some women commented that the actions of their male peers and event leaders made them feel uncomfortable and invisible.[115] Moreover, since recruitment events are often held at universities or marketed to university students, limited research shows they can privilege candidates of similar socioeconomic backgrounds.[116] One ICTC interviewee noted that *"some companies that have always hired co-ops and new grads from the same universities... and those universities don't have the diversity that they're looking for."*

"Recent studies in the U.S. find that algorithms promote STEM job ads to more men than women..."

Challenges in Finding Candidates: Job Boards and Social Media

Companies that primarily recruit online rather than in-person face other challenges to attracting gender-diverse candidates on popular job boards and social media sites. Recent studies in the U.S. find that algorithms promote STEM job ads to more men than women, despite efforts from employers to reduce gender bias in the post itself.[117] The researchers hypothesized that this may occur because young women are a valued advertising demographic, so showing them the STEM job ad costs more.[118] While there is no research examining how this ad optimization would impact gender nonconforming and nonbinary applicants, a recent investigation found that gender filtering options on Google allows advertisers to prevent people classified as "unknown" gender (refusing to identify as male or female) from receiving their job ads.[119] Algorithmic biases and screening functions on job boards and social media sites are particularly worrying since the majority of interviewees reported using popular job boards and social media sites to advertise for tech roles.

[113] Alison T Wynn et al. "Puncturing the Pipeline: Do Technology Companies Alienate Women in Recruiting Sessions?," Social Studies of Science 48, no. 1 (2018): 149–64, https://www.jstor.org/stable/48569075?seq=1; Caroline Dobbe Hardin, "I'm Exhausted and This Is Fun": Learning and Equity at Hackathons (University of Wisconsin: 2019), https://books.google.ca/books/about/I_m_Exhausted_and_this_is_Fun.html?id=1DhFzgEACAAJ&redir_esc=y

[114] Adrienne Decker et al. "Understanding and Improving the Culture of Hackathons: Think Global Hack Local," 2015 IEEE Frontiers in Education Conference (2015), https://doi.org/10.1109/FIE.2015.7344211; Lavinia Paganini et al., "Promoting Game Jams and Hackathons as More Women-Inclusive Environments for Informal Learning," 2021 IEEE Frontiers in Education Conference (2021), https://doi.org/10.1109/FIE49875.2021.9637301

[115] Claudia Ferraz et al. "Female Participation in Game Jams: A Case Study on Gender Issues in Game Development Marathons," *Proceedings of SBGames 2020* (2020), https://www.sbgames.org/proceedings2020/CTDMestrado/207402.pdf

[116] Phoebe K. Chua et al. "Are You One of Us? Current Hiring Practices Suggest the Potential for Class Biases in Large Tech Companies," Proceedings of the ACM on Human-Computer Interaction 4, no. CSCW2 (October 2020): 143:1-143:20, https://doi.org/10.1145/3415214.

[117] Anja Lambrecht and Catherine Tucker, "Algorithmic Bias? An Empirical Study of Apparent Gender-Based Discrimination in the Display of STEM Career Ads," SSRN, 2019, https://dspace.mit.edu/handle/1721.1/134404

[118] Lambrecht and Tucker, "Algorithmic Bias?" Lambrecht and Tucker.

[119] Jeremy B. Merrill, "Google Has Been Allowing Advertisers to Exclude Nonbinary People from Seeing Job Ads," The Markup, n.d.

Challenges in Finding Candidates: Talent Acquisition Software

Tech companies that rely on talent acquisition software may face other algorithmic bias challenges when attempting to source gender-diverse candidates. For example, a U.S. study found that algorithms in talent acquisition software "may serve to codify deep-seated biases, making IT work environments just as homogeneous as they are currently."[120] Indeed, recommender systems like ZipRecruiter may reconstruct the biases they allege to mitigate in their use of attenuated proxies to determine "relevance" and "interest."[121] For example, if a senior-level woman often clicks on mid-level jobs, the algorithm may eventually start feeding her fewer and fewer senior and high-paying job postings. Other filtering options, such as collaborative filtering, may disadvantage certain groups based on the collective behaviour "of people the system deems" are similar,[122] for example by showing nonbinary people fewer senior-level job posts than cis men with comparable qualifications.

Challenges in Finding Candidates: Referral Networks

Many companies use social referrals to acquire new talent, though they are known to reinforce existing networks and demographics. For instance, existing research on Silicon Valley tech companies links failed diversity initiatives to tech's reliance on social referrals.[123] Social referrals "prioritize non-meritocratic qualities such as tastes, leisure interests, and personality,"[124] and therefore tend to replicate existing workplace demographics. Many ICTC interviewees expressed frustration with being *"left out of informal patterns of communication."* Others questioned, *"How do we even network? Where do we even go to find people who are in the field that we want to get into?"*

Informal network challenges are compounded for Black women. According to a study examining gender bias in San Francisco's tech industry, "when compared with non-Black women, the quality and quantity of Black women's social networks are not as resource-rich in information about jobs."[125] In other words, because of systemic exclusion from tech work, the partners, siblings, education

[120] Lynette Yarger, Fay Cobb Payton, and Bikalpa Neupane, "Algorithmic Equity in the Hiring of Underrepresented IT Job Candidates," *Online Information Review* 44, no. 2 (January 1, 2019): 383–95, https://doi.org/10.1108/OIR-10-2018-0334

[121] Yarger, Cobb Payton, and Neupane.

[122] Miranda Bogen and Aaron Rieke, "Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias," Report (Upturn, December 9, 2018), United States of America, https://apo.org.au/node/210071

[123] France Winddance Twine, "Technology's Invisible Women: Black Geek Girls in Silicon Valley and the Failure of Diversity Initiatives," *International Journal of Critical Diversity Studies* (June 1, 2018), https://doi.org/10.13169/intecritdivestud.1.1.0058

[124] France Winddance Twine, "Technology's Invisible Women: Black Geek Girls in Silicon Valley and the Failure of Diversity Initiatives," *International Journal of Critical Diversity Studies* (June 1, 2018), https://doi.org/10.13169/intecritdivestud.1.1.0058

[124] Ibid.

[125] Ibid.

connections, neighbours, and friends of Black women are "less likely to be embedded in a network of Black tech workers or co-ethnics in the industry."[126] As a result, these Black women with tech skills in San Francisco are less likely to benefit from social referrals.[127] While ICTC could not locate a comparable study based in Canada, the 2022 "Black Women in Tech: Disrupting the Industry" presentation by the Black Professionals in Tech Network (BPTN) corroborates that "limited connections" create barriers to entry for Black women in Canada's tech ecosystem.[128] This lack of social network may also have a significant impact on women who are also newcomers to Canada seeking tech jobs.[129]

Finally, some jobseekers canvass their contacts for available positions and ask friends and colleagues to refer them for relevant roles. People of marginalized genders are less likely to benefit from these referrals than cis gender men because they are less likely to ask for referrals. For example, a 2019 LinkedIn study found that women are 26% less likely to ask for a referral than men.[130] This is particularly concerning since one study "found that women referred for entry-level tech jobs are significantly more likely to be hired than women without referrals."[131] Although ICTC was unable to locate secondary research, since referrals tend to reproduce the status quo, this barrier likely impacts GNC candidates as well. Other key factors that can impact referral networks include socioeconomic status and gender-coded hobby choices (e.g., hunting, golf, hockey). Other key factors that can impact referral networks include socioeconomic status and gender-coded hobby choices (e.g., hunting, golf, hockey).[132]

Opportunity: Designing Better Candidate Sourcing Techniques and Diversifying Sources

While ICTC's focus group participants and interviewees highlighted different solutions that tech employers can leverage to source more gender-diverse candidates, they were unanimous that a targeted and multifaced strategy is necessary. As one interviewee put it, *"You must have a clear strategy on how you're going to get those numbers up...walk the walk!"* In practice, these dedicated outreach strategies can include developing partnerships with organizations that support gender, leveraging pre-existing social media networks for people of marginalized genders, and sourcing gender-diverse candidates internally.

[126] France Winddance Twine, "Technology's Invisible Women: Black Geek Girls in Silicon Valley and the Failure of Diversity Initiatives," *International Journal of Critical Diversity Studies* (June 1, 2018), https://doi.org/10.13169/intecritdivestud.1.1.0058

[127] Ibid.

[128] "Black Women in Tech: Disrupting the Industry" March 2022, Virtual, *Global Masterclass Series, Black Professionals in Tech Network* (BPTN), https://onlinexperiences.com/scripts/Server.nxp?LASCmd=AI:4;F:QS!10100&ShowUUID=F23A116E-9486-489C-BC1B-D6AABD9B9EAB&Referer=https%3A%2F%2Fwww.google.com%2F

[129] Recent ICTC research also suggests that newcomers to Alberta face additional barriers in the tech job search due to lack of connections. Intersectional analysis suggests that these impacts may be compounded for newcomers who are women; Tyler Farmer, "Settling for More: Matching Newcomers to Alberta's Tech Sector," *Information and Communications Technology Council* (November 2021), https://medium.com/digitalthinktankictc/settling-for-more-87c97915b823

[130] Deanne Tockey et al. "Gender Insights Report: How Women Find Jobs Differently," *LinkedIn Talent Solutions* (2019), https://business.linkedin.com/content/dam/me/business/en-us/talent-solutions-lodestone/body/pdf/Gender-Insights-Report.pdf

[131] Elizabeth K. Eger, "Women and IT: The Facts," National Center for Women and Information Technology (2016), https://www.academia.edu/25601833/Women_and_IT_The_Facts

[132] Phoebe K. Chua et al. "Are You One of Us? Current Hiring Practices Suggest the Potential for Class Biases in Large Tech Companies," *Proceedings of the ACM on Human-Computer Interaction* 4, no. CSCW2 (October 2020): 143:1-143:20, https://doi.org/10.1145/3415214

Partnering with organizations that support gender diversity can help tech employers attract hard-to-reach candidates, including women and GNC individuals.[133] Because smaller organizations may not have the internal resources, capacity, or community knowledge to find candidates of marginalized genders, these partnerships can help expand limited recruitment networks.[134] For example, Canadian organizations such as Chic Geek, SCWIST (The Society for Canadian Women in Science and Technology), and QueerTech offer an assortment of targeted job boards, recruitment events, and networking options that can help tech businesses grow gender diversity in their applicant pool. Another partnership option to increase recruitment reach are university alliance groups such as the University of Windsor's Women in Engineering (WiE) or McGill's "Queer Engineer."[135] ICTC focus group participants also suggest collaborating with co-op coordinators for colleges and universities who specialize in EDI placements.

The recruitment events hosted by these EDI organizations already have supports in place to ensure gender-diverse attendees and a welcoming event environment. For example, QueerTech's virtual 2022 Qareers Job Fair draws a broad network of LGBTQ2IS+ job seekers. QueerTech's event page states it is "dedicated to providing a harassment-free experience for everyone regardless of gender, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, age or religion."[136] Although some ICTC focus group attendees in the HR focus group expressed skepticism, the majority of interviewees agreed that these events are a good source for gender-diverse candidates. One interviewee said, *"Go find those recruiting events that are specifically for certain minorities!"* Attending these events can also help tech employers integrate best practices for working with gender-diverse employees.[137]

As the role of social media continues to grow for gen-Z and millennial hires,[138] organizations looking to full tech roles should also **consider tapping into pre-existing gender-diverse social media networks**. Several interviewees noted success leveraging Twitter, Slack, and Facebook to find gender-diverse candidates. For example, one interviewee said that *"on Twitter, I'm following a lot of Black tech or Black professionals in the tech industry, and there's a lot of [opportunities]… to reach out to [diverse] people."* Another added that *"there are like a million Twitter lists with diverse tech talent."* Many Twitter accounts, Frauvis:

[133] Tech employers should ensure they have the necessary supports in place to create an equitable work environment for successful gender-diverse candidates before partnering with these EDI organizations. With these supports in place and a tangible commitment to diversity from leadership, tech employers can help ensure that these often over-burdened organizations are making good use of their time.

[134] Kristi Lamar, "Cultivating Diversity, Equity, and Inclusion: How CIOs Recruit and Retain Experienced Women in Tech," *Deloitte Insights (blog)*, March 2021, https://www2.deloitte.com/uk/en/insights/topics/value-of-diversity-and-inclusion/diversity-and-inclusion-in-tech/recruit-and-retain-experienced-women-in-technology.html; Paolo Ruffino, *Independent Videogames: Cultures, Networks, Techniques and Politics* (Routledge: 2020), https://books.google.ca/books/about/Independent_Videogames.html?id=GcX2DwAAQBAJ&redir_esc=y

[135] "Queer Engineer [McGill]," *Facebook*, accessed February 2022, https://www.facebook.com/QueerEngineerMcGill/

[136] "Quareers," *Queer Tech*, accessed March 2022, https://www.queertech.org/qareers_virtual_fair

[137] Best practices for gender-inclusive presentations include discussing real-world impacts of tech work, highlighting gender-diverse employees, and avoiding jargon-heavy presentations; Alison T Wynn et al. "Puncturing the Pipeline: Do Technology Companies Alienate Women in Recruiting Sessions?," *Social Studies of Science* 48, no. 1 (2018): 149–64, https://www.jstor.org/stable/48569075?seq=1

[138] Alexi Venneri, "*Social Recruiting Is Growing. Are You Prepared?*," Forbes: Grads of Life (blog), 2018, https://www.forbes.com/sites/gradsoflife/2018/01/18/social-recruiting-is-growing-are-you-prepared/?sh=395f07a89cae

Black Womxn In Tech in for example, also retweet relevant job posts to their diverse audiences. Another interviewee mentioned posting jobs to several Discord and Slack channels as an opportunity for sourcing GNC and queer tech talent.

Larger organizations with capacity and resources to upskill employees can also recruit gender-diverse candidates for technical roles by **sourcing internally**. For example, recent Harvard Business Review analysis suggests that providing women with a clear career development path to technical roles can significantly increase the number of women in technical roles.[139] Some tech organizations such as U.S.-based T-Mobile survey existing employees to see if they want to transition into technical roles and then support retraining initiatives.[140] Several interviewees also suggested that upskilling existing internal talent can help increase gender parity. One interviewee explained that *"a woman in marketing or communications may have transferrable skills to a product design role... or someone in an operational or customer service roles might be good at user experimentation and UX/UI."*

Other low effort and affordable interventions include lengthening candidate shortlists for interviews,[141] ensuring recruiters are trained to recognize and mitigate bias,[142] and hosting informal meetups targeted at people of marginalized genders.[143] The success of these and other recruitment initiatives also depends on inclusive employer branding, policies, and workplace culture.[144, 145]

[139] Deena Gergis et al. "Two Ways to Improve Gender Balance in Tech," *Harvard Business Review* (December 2021), https://hbr.org/2021/12/two-ways-to-improve-gender-balance-in-tech

[140] Kristi Lamar, "Deloitte Insights," Cultivating Diversity, Equity, and Inclusion: How CIOs Recruit and Retain Experienced *Women in Tech*, (March 2021), https://www2.deloitte.com/uk/en/insights/topics/value-of-diversity-and-inclusion/diversity-and-inclusion-in-tech/recruit-and-retain-experienced-women-in-technology.html

[141] The pervasiveness of referrals often means candidates with less traditional work and education backgrounds will not make it to the interview stage.

[142] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada* (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

[143] Anonymous (gender equity expert), in ICTC advisory committee, November 2021.

[144] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada* (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

[145] Alison T Wynn et al. "Puncturing the Pipeline: Do Technology Companies Alienate Women in Recruiting Sessions?," *Social Studies of Science* 48, no. 1 (2018): 149–64, https://www.jstor.org/stable/48569075?seq=1

CAPGEMINI is a French multinational information technology services and consulting company with offices in Toronto, Ontario. As part of a gender equity program, Capgemini has an open sourcing policy to mitigate referral-based gender biases, which requires both internal and external recruiters to source at least one candidate of marginalized gender(s) for each role.

Challenge: Interview and Candidate Selection Process

**Due to a lack of data, it is unclear how this challenge impacts GNC candidates; however, the opportunities to improve the interview and candidate selection process (listed below) may benefit GNC applicants.*

During the interview and candidate selection process, unconscious bias and ingrained stereotypes can create challenges for people of marginalized genders. For example, implicit stereotypes can appear in the questions that interviewers choose to ask candidates. [146]

According to a 2021 Resume.IO survey of 2000 Americans across all sectors, interviewers are more likely to ask women "where they see themselves in five years" than men. [147] The authors suggest that women may receive this question at a higher rate because the interviewers are trying to determine (consciously or unconsciously) whether the candidate expects to start a family in the near future and will need to take time off work. [148] While that study was not specific to the tech sector, another survey on software developers in the U.S., found that both male and female software engineers are more likely to associate women with "home and family," suggesting that these biases are present in the technology sector as well. [149] In addition to these gender-biased long-term commitment questions, the Resume.IO survey found that women are also more likely to be asked about greatest strengths, weaknesses, and failures than cis men. [150] The authors suggest these questions show that women need to prove their capabilities more so than men.

Further, **specific tech strategies can create unwelcoming interview environments for women**, which can asymmetrically impact candidate performance. For instance, since technical interviews that make candidates write algorithms on a whiteboard are linked to high levels of stress, they tend to showcase the skills of confident candidates (less confident candidates may be able to perform the task equally well in non-interview real-world conditions). [151] Numerous studies show that women are less "confident" than men in interview settings. [152] The majority of interviewees similarly linked this lack of confidence to unwelcoming interview environments. As one focus group member asserted,

[146] Rolf Bax, "The Worst Job Interview Questions, Revealed," *Resume.IO* (blog), 2021, https://resume.io/blog/the-worst-job-interview-questions-revealed

[147] Ibid.

[148] Ibid.

[149] While they did not explicitly link extra parental leave questions to the interview process, ICTC study participants also confirmed that societal norms that link parental leave to women can impact the career progression of women in tech, particularly for mid-level women; Yi Wang et al. "Implicit Gender Biases in Professional Software Development: An Empirical Study," *2019 IEEE/ACM 41st International Conference on Software Engineering: Software Engineering in Society* (2019), https://doi.org/10.1109/ICSE-SEIS.2019.00009

[150] Rolf Bax, "The Worst Job Interview Questions, Revealed," *Resume.IO* (blog), 2021, https://resume.io/blog/the-worst-job-interview-questions-revealed

[151] Denae Ford et al., "The Tech-Talk Balance: What Technical Interviewers Expect from Technical Candidates," *2017 IEEE/ACM 10th International Workshop on Cooperative and Human Aspects of Software Engineering* (2017), https://doi.org/10.1109/CHASE.2017.8

[152] Elizabeth K. Eger, "Women and IT: The Facts," *National Center for Women and Information Technology* (2016), https://www.academia.edu/25601833/Women_and_IT_The_Facts; Mahnaz Behroozi, "Toward Fixing Bad Practices in Software Engineering Hiring Process" *North Carolina State University* (2022), https://repository.lib.ncsu.edu/handle/1840.20/39403

"It's the environment that women find themselves in that lead to a lack of confidence—or what appears to be a 'lack of confidence.'" Another agreed that *"the way we interview tends to demoralize."* Racialized women, neurodiverse women (e.g., persons with autism, anxiety, dyslexia),[153] and women with low-income jobs[154] may face additional challenges in high-stress interviews that reduce their chances of receiving a job offer.[155]

Additionally, **unconscious bias can undermine women in tech occupations during the candidate evaluation process**. As noted, in typical interview environments, women tend to be less confident than men.[156, 157] Research shows that hiring managers evaluating technical performances often place significant value on confidence (at times, over confidence).[158] An interviewee in Human Resources said, *"I've worked with hiring managers who, based on the interview process for these roles, lean more toward the outwardly confident person (often men). Whether or not female interviewees have the capabilities sometimes gets overshadowed."*

Opportunity: Mitigating Bias and Increasing Transparency in the Interview and Candidate Selection Process

There are several easy changes tech employers can make to **reduce bias during interview question and evaluation criteria development**. For example, to ensure that women interviewees for tech roles do not feel the need to justify their long-term commitment and capability more than candidates who are men, tech employers can standardize a question list for all candidates.[159] In addition, hiring committees can standardize the value of specific credentials and qualifications before meeting the candidates to avoid changing the value of credentials during the process to favour applicants who are men.[160] Some anecdotal evidence suggests that GNC candidates can also benefit from standardized interview questions and candidate evaluation processes.[161] Additionally, interviewees suggested that introducing portfolio-based assessments during the interview process can prevent the gender gap in self-reported skills. While these changes in interview questions and evaluations require minimal

[153] Sian Beilock et al. "From Poor Performance to Success Under Stress: Working Memory, Strategy Selection, and Mathematical Problem Solving Under Pressure," *Journal of Experimental Psychology. Learning, Memory, and Cognition* 33 (December 2007): 983–98, https://doi.org/10.1037/0278-7393.33.6.983.

[154] Ibid.

[155] Mahnaz Behroozi, "Toward Fixing Bad Practices in Software Engineering Hiring Process" *North Carolina State University* (2022), https://repository.lib.ncsu.edu/handle/1840.20/39403.

[156] Elizabeth K. Eger, "Women and IT: The Facts," *National Center for Women and Information Technology* (2016), https://www.academia.edu/25601833/Women_and_IT_The_Facts.

[157] Mahnaz Behroozi, "Toward Fixing Bad Practices in Software Engineering Hiring Process" (North Carolina, North Carolina State University, 2022), https://repository.lib.ncsu.edu/handle/1840.20/39403.

[158] Denae Ford et al., "The Tech-Talk Balance: What Technical Interviewers Expect from Technical Candidates," *2017 IEEE/ACM 10th International Workshop on Cooperative and Human Aspects of Software Engineering* (2017), https://doi.org/10.1109/CHASE.2017.8.

[159] Horace McCormick, "The Real Effects of Unconscious Bias in the Workplace," *UNC Kenan-Flagler Business School* (2017), https://www.supplychain247.com/paper/the_real_effects_of_unconscious_bias_in_the_workplace#:~:text=Unconscious%20biases%20in%20the%20workplace,unwittingly%20undermines%20an%20organization's%20culture.

[160] Amarette Filut, Anna Kaatz, and Molly Carnes, "The Impact of Unconscious Bias on Women's Career Advancement," *Sasakawa Peace Foundation* (2017), https://www.spf.org/publication/upload/Unconscious%20Bias%20and%20Womens%20Careers_2017_en.pdf.

[161] Lindsey Danis, "Job Hunting While Gender Nonconforming," *The Slowdown* (blog), April 2, 2020, https://medium.com/the-slowdown/job-hunting-while-gender-nonconforming-f408c5615257.

[162] Horace McCormick, "The Real Effects of Unconscious Bias in the Workplace," *UNC Kenan-Flagler Business School* (2017), https://www.supplychain247.com/paper/the_real_effects_of_unconscious_bias_in_the_workplace#:~:text=Unconscious%20biases%20in%20the%20workplace,unwittingly%20undermines%20an%20organization's%20culture

effort on the part of tech employers, they can reduce gender bias.[162] To help women overcome the apparent lack of confidence, tech employers can increase transparency in the interview process. Employers can, for example, provide candidates with guidance on "the skills they should emphasize; the scope of the topics, such as specific algorithms or data structures that they are expected to know; references to relevant materials, such as books or tutorials; [and] representative interview questions."[163] Some international tech companies like Asana are already implementing these transparency measures by providing interview guides and virtual interview samples.[164] Several GNC and women interviewees confirmed that transparency around the interview process would be helpful.

In addition to these strategies, interviewees noted that **bias training** for interviewers, hiring managers, and hiring committees can help reduce gender bias for GNC and women candidates.[165] Large U.S. tech companies, such as GitLab, are already training their interviewers to recognize unconscious bias and developing techniques to mitigate the impacts of bias during the interview. Techniques include "[asking] interviewers who recognize a positive or negative bias during the interview to excuse themselves and ask someone else to interview that candidate."[166] This technique may not work for a smaller tech company because of staffing limitations; smaller companies may instead ensure they supply hiring committees with enough time to make informed decisions to help reduce the "cognitive habit of relying on gender stereotypes."[167] Interviewees agreed that bias training is key:

> "Before you engage in an inclusive hiring practice, the hiring committee needs to do their own work first. You have to be aware of the dynamics of how you will work together and how you will show up in the space. The hiring company needs to do their own internal work, acknowledging that they have biases that they will bring into this space."

[163] Mahnaz Behroozi, "Toward Fixing Bad Practices in Software Engineering Hiring Process" (North Carolina, North Carolina State University, 2022), https://repository.lib.ncsu.edu/handle/1840.20/39403
[164] Ibid.
[165] Sandra R. DiBrito et al., "Reducing Implicit Bias: Association of Women Surgeons #HeForShe Taskforce Best Practices Recommendations," *Journal of the American College of Surgeons* 228, no. 3 (March 2019): 303–9, https://doi.org/10.1016/j.jamcollsurg.2018.12.011; Mahnaz Behroozi, "Toward Fixing Bad Practices in Software Engineering Hiring Process" *North Carolina State University* (2022), https://repository.lib.ncsu.edu/handle/1840.20/39403
[166] Mahnaz Behroozi, "Toward Fixing Bad Practices in Software Engineering Hiring Process" (North Carolina, North Carolina State University, 2022), https://repository.lib.ncsu.edu/handle/1840.20/39403
[167] Dhanisha Nandigama et al. "Eeny, Meeny, Miny, Moe - Hire Him and Let Her Go? Using Science to Reduce Hiring Bias," *NHRD Network Journal* 14 (February 2021): 1–15, https://doi.org/10.1177/2631454120987343

MICROSOFT's 2018 Affirmative Action Plan and the updated "Interview tips for all roles" website page offer techniques to make their interviews more equitable. These include transparent evaluation methods tailored to specific roles, levels, and interview formats. They also ensure that women and minorities are part of the interview process.

SPOTLIGHT
Avoid Tokenism

A self-perpetuating demographic divide in the tech sector means that cis men candidates may have more work experience and expertise than candidates who have not yet had the opportunity to build their experience or credentials.[168] Accordingly, ICTC study participants raised this question: should hiring committees lower their standards to increase gender equity? Interviewee responses were mixed. Some CEOs and hiring managers were against lowering standards. One interviewee said, *"It's one thing to want to fill these roles with a specific demographic. But it's another thing to say [women] not able to get there for themselves, so let's lower [our standards] for them."* Many interviewees were committed to hiring based on potential. As one Nova Scotia focus group participant asserted, *"When I'm hiring, I'm trying to find the potential that I'm looking for. It's a risk, but sometimes you have to take the risk."*

Despite these opposing positions, interviewees agreed that tech companies should avoid *"performative ways of recruiting,"* hiring to "*check a box,"* and making people of marginalized genders *"the token hire."* Tokenism is "the practice of doing something (such as hiring a person who belongs to a minority group) only to prevent criticism and give the appearance that people are being treated fairly."[169] Interviewees emphasized that being perceived as a "token hire" can harm a marginalized gender candidate's confidence and career. For instance,

[168] Adriana Gascoigne et al. "Repairing the broken rung on the career ladder for women in technical roles," *McKinsey and Company* (March 2022), https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/repairing-the-broken-rung-on-the-career-ladder-for-women-in-technical-roles

[169] "Tokenism," *Merriam-Webster*, accessed March 2022, https://www.merriam-webster.com/dictionary/tokenism

an interviewee noted that being a token hire would *"take away from my ability to get the job done. It would also always leave behind this doubt that I got hired because I'm a woman and not because I was the best candidate for that role."*

Challenge: Salary Negotiation

**Due to a lack of data, it is unclear how the "ask gap" affects GNC candidates, but research shows that there is a wage gap for GNC candidates compared to cisgender men.*

Despite attempts to decrease the wage gap, pay equity is still a concern across the economy, tech sector and tech occupations included.[170] The wage gap for gender-diverse employees in entry- and mid-level tech roles is partly due to an initial "ask gap."

A 2021 Hired.com analysis of salary asks (primarily in the tech sector) in the U.S. found that "women with resumes comparable to those of men ask for 2.9% less." On average, that works out to an approximate loss of $4500 CAD every year.[171] A 2019 study by StatsCan confirms that "women are less likely than men to negotiate more favourable employment terms for base salary, stock options, and bonuses."[172] As one of ICTC's HR focus group participants noted, in tech *"a person could have only one year of experience, but will aggressively negotiate to the salary of somebody who has 10 years under their belt, and women are not doing these negotiations."* Another participant agreed: *"Women don't know they can negotiate or don't think they can."*

Research from the U.S. attributes the gender ask gap to "downward biased beliefs about how much [candidates] can ask for."[173] This bias is primarily due to women thinking the average wage for candidates with similar experience and credentials is lower than the real market wage.[174] The study also finds a slight ask gap of 1.2% for African Americans, 1.4% for Hispanic, and 1% for Asian applicants when compared to their white counterparts (the intersection of race and gender is not addressed).[175] Another study from Sweden similarly found that "while men and women consider themselves relatively similar to an ideal candidate" based on job posting information, the anticipated wage of an ideal candidate is lower for women students than for men students.[176]

[170] Viet Vu, et al. "Who Are Canada's Tech Workers?", *Brookfield Institute* (2019), https://brookfieldinstitute.ca/wp-content/uploads/FINAL-Tech-Workers-ONLINE.pdf

[171] Nina Rousille, "The Central Role of The Ask Gap in Gender Pay Inequality," *Hub for Equal Representation in the economy (H.E.R.)* (October 2021), https://www.hubequalrep.org/research/the-central-role-of-the-ask-gap-in-gender-pay-inequality/

[172] Melissa Moyser, "Measuring and Analyzing the Gender Pay Gap: A Conceptual and Methodological Overview," *Statistics Canada* (2019), https://www150.statcan.gc.ca/n1/pub/45-20-0002/452000022019001-eng.htm

[173] Nina Rousille, "The Central Role of The Ask Gap in Gender Pay Inequality," *Hub for Equal Representation in the economy (H.E.R.)* (October 2021), https://www.hubequalrep.org/research/the-central-role-of-the-ask-gap-in-gender-pay-inequality/

[174] Ibid.

[175] Ibid.

[176] Anna Dreber et al. "Why Do Women Ask for Less?," *Social Science Research Network* (October 2020), https://doi.org/10.2139/ssrn.3703813

Other factors that contribute to women's higher probability of asking for lower wages can include: "putting more weight on getting the job" with the assumption that asking for lower wages increases chances of success; prioritizing other factors such as flexible work hours or shorter commutes[177] over salary; and being more likely to have lower confidence levels about unproven skills than men.[178] As one focus group participant said, *"Sometimes we don't think, 'Is this paying according to our skills? Is there room for negotiation?' It seems so taboo, and it's an uncomfortable subject. People worry that the offer might get retracted."*

It is unclear how the "ask gap" affects GNC candidates due to a lack of data, but research points to a wage gap for GNC candidates compared to cisgender men.[179] A survey of employees (across sectors including tech) by the Human Rights Campaign Foundation showed that GNC employees only earn 70% of what cisgender men earn.[180] One nonbinary interviewee confirmed that as an intern, *"I've just taken the [salary] they gave me...I never negotiated that."*

"GNC and women interviewees both confirmed that more salary transparency during the hiring process would be welcome."

Opportunity: Building Transparency Around Salary Negotiation

Since the "ask gap" stems from biased perceptions of how much an ideal candidate will be paid, transparency is key for organizations looking to improve gender equity. In fact, one study found that when women software engineers in San Francisco were shown the industry average for their role, the ask gap disappeared.[181] Companies can adopt wage transparency in various ways: by highlighting the industry average for the role in their job posting, by leveraging sites such as Hired.com that allow employers to present industry average salaries to guide applicant salary "asks," etc.[182] Other helpful options that were proposed by ICTC's interviewees and focus group attendees include disclosing industry averages during the salary negotiation processes, sending an offer before asking a candidate's salary expectations, and ensuring that proposed salaries for people of marginalized genders are equal to men of similar roles within the company. GNC and women interviewees both confirmed that more salary transparency during the hiring process would be welcome. A nonbinary participant confirmed that *"salary transparency would be huge."*

[177] Thomas Le Barbanchon et al. "Gender Differences in Job Search: Trading off Commute against Wage," *The Quarterly Journal of Economics* 136, no. 1 (February 1, 2021): 381–426, https://doi.org/10.1093/qje/qjaa033

[178] Nina Rousille, "The Central Role of The Ask Gap in Gender Pay Inequality," *Hub for Equal Representation in the economy (H.E.R.)* (October 2021), https://www.hubequalrep.org/research/the-central-role-of-the-ask-gap-in-gender-pay-inequality/

[179] "The Wage Gap Among LGBTQ+ Workers in the United States," *Human Rights Campaign Foundation online*, January 2022, https://www.hrc.org/resources/the-wage-gap-among-lgbtq-workers-in-the-united-states

[180] Ibid.

[181] Nina Rousille, "The Central Role of The Ask Gap in Gender Pay Inequality," *Hub for Equal Representation in the economy (H.E.R.)* (October 2021), https://www.hubequalrep.org/research/the-central-role-of-the-ask-gap-in-gender-pay-inequality/

[182] Ibid.

Workplace Policies and Programs

Since people of marginalized genders leave the tech industry at a higher rate than cisgender men, targeted strategies are necessary to retain and support gender-diverse tech workers.

According to recent research, for example, the turnover rate for women in American tech sector jobs is more than double that of men.[183] Although no national studies exist on attrition for gender nonconforming people in tech in Canada, these numbers may be similarly high due to the information that does exist on low levels of community and belonging (see Workplace Culture section for more detail).[184] Attrition may also be higher for entry- and mid-level positions. According to Canadian data, young STEM graduates have higher levels of attrition than their older colleagues[185] and, according to a 2021 report from IBM, gen-Z makes up 30% of people who chose to change jobs last year.[186]

Despite the need for strategies to increase retention and support, ICTC's survey of tech employers across Canada found a significant gap between employer aspirations for gender equity in digital economy workplaces and the strategies needed to achieve gender equity. For example, although all respondents said workplace strategies to attract women to tech (e.g., developing a supportive culture, making career advancement equitable) is "important," 12% of businesses had no strategies to increase the retention of women in their organizations. Pride at Work's report *Hiring Across All Spectrums* and BC Tech Association's 2SLGBTQ+ Insights Report also identify a high demand for inclusive workplace policies and programs among LGBTQI2S+ workers but finds that employers in Canada have many areas they can improve.[187]

The gap between employers that identify the need for gender-diversity workplace interventions and the actual development of the necessary policies and programs may suggest that tech employers do not have the capacity or knowledge to act on their inclusivity aspirations.[188] Tech companies that aspire to retain entry- and mid-level gender-diverse tech talent need to develop equitable strategies for leadership support and foster an appropriate workplace culture and benefits and accommodations.

183 Abby McCain, "Women In Technology Statistics [2022]: Tech Industry Challenges For Women," *Zippia*, last modified February 2022, https://www.zippia.com/advice/women-in-technology-statistics/

184 Karina Silveira et al., "Reinforcing Diversity Company Policies: Insights from StackOverflow Developers Survey," *Proceedings of the 21st International Conference on Enterprise Information Systems* (2019), https://doi.org/10.5220/0007707901190129

185 Kristyn Frank, "A Gender Analysis of the Occupational Pathways of STEM Graduates in Canada," *Statistics Canada* (September 2019), https://www150.statcan.gc.ca/n1/pub/11f0019m/11f0019m2019017-eng.htm

186 "What Employees Expect in 2021: Engaging Talent in the Shadow of COVID" IBM (February 2021), https://www.ibm.com/thought-leadership/institute-business-value/report/employee-expectations-2021#.

187 "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada* (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf; "2SLGBTQ+ Insights Report," BC Tech Association (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

188 Anonymous (gender equity expert), advisory committee, August 2021.

Key Challenge Areas for Gender Diversity in the Workplace

Figure 10: Key Challenge Areas in the Workplace.

Challenge: Leadership Support

Quantifiable change requires a **genuine commitment** from senior management to ending systemic gender equity problems in tech.[189] A 2019 report found that inclusive leadership behaviours account for 45% of an employee's sense of belonging and inclusion.[190] A genuine commitment to diversity among organization leaders is multifaceted and spans modelling inclusive behaviour, implementing fair accountability structures, and creating opportunities for open discussion and learning about personal and company failures and successes.[191] Without these and other actions to support gender equity, studies find that lower-level employees may be less inclined to engage in "helping behaviours" that create a more inclusive workplace climate.[192] As one of ICTC's interviewee stressed: **"You can reimagine your processes, your documents, and the words you use, but you won't get very far if the fundamental culture of the organization doesn't shift—starting with the executive team down."** Without a real commitment from leadership, it is difficult to garner organization-wide support and success.[193]

In addition to genuine commitment, the **framing mechanisms** that senior management leverage matter. Research shows that tech executives tend to approach gender-based challenges by focusing on individuals rather than systems and policies. One study of Silicon Valley executives, for example, found that these supply-side solutions put the onus for change on people of marginalized genders

[189] Frank Dobbin et al. "Why Diversity Programs Fail," *Harvard Business Review* (July 2016), https://hbr.org/2016/07/why-diversity-programs-fail; Alison T. Wynn, "Pathways toward Change: Ideologies and Gender Equality in a Silicon Valley Technology Company," *Gender & Society* 34, no. 1 (February 1, 2020): 106–30, https://doi.org/10.1177/0891243219876271; Frank Dobbin et al. "Rage against the Iron Cage: The Varied Effects of Bureaucratic Personnel Reforms on Diversity," *American Sociological Review* 80, no. 5 (October 2015): 1014–44, https://doi.org/10.1177/0003122415596416; Charlotte J. Yong-Hing et al. "Diversity in Canadian Radiology: Success Requires Leadership Commitment," *Canadian Association of Radiologists Journal* 71, no. 4 (November 2020): 423–24, https://doi.org/10.1177/0846537120916069

[190] Dnika J. Travis et al. "Getting Real About Inclusive Leadership: Why Change Starts With You" *Catalyst* (2019), https://www.catalyst.org/research/inclusive-leadership-report/

[191] Kenna Cottrill et al. "How Authentic Leadership and Inclusion Benefit Organizations," ed. Dr Johanna Hofbauer and Dr Astrid Podsiadlowski, *Equality, Diversity and Inclusion: An International Journal* 33, no. 3 (January 2014), https://doi.org/10.1108/EDI-05-2012-0041

[192] Amy E Randel et al. "Leader Inclusiveness, Psychological Diversity Climate, and Helping Behaviors," *Journal of Managerial Psychology* 31, no. 1 (January 2016): 216–34, https://doi.org/10.1108/JMP-04-2013-0123

[193] Alison T Wynn et al. "Puncturing the Pipeline: Do Technology Companies Alienate Women in Recruiting Sessions?," *Social Studies of Science* 48, no. 1 (2018): 149–64, https://www.jstor.org/stable/48569075?seq=1

(e.g., boosting personal confidence to increase likelihood of promotion), rather than the demand-side actions and programs (further discussed below).[194] Since research also shows that employees are more inclined to support diversity policies framed as systemic rather than individual problems, the current trend that supports individual fixes will likely diminish the success of EDI policies or culture changes.[195]

[194] Alison T Wynn et al. "Puncturing the Pipeline: Do Technology Companies Alienate Women in Recruiting Sessions?," *Social Studies of Science* 48, no. 1 (2018): 149–64, https://www.jstor.org/stable/48569075?seq=1

[195] William J. Scarborough et al. "Support of Workplace Diversity Policies: The Role of Race, Gender, and Beliefs about Inequality," *Social Science Research* 79 (March 2019): 194–210, https://doi.org/10.1016/j.ssresearch.2019.01.002

Opportunity: Leading by Example

Inclusive leadership means adapting outward behaviour to "ensure team members are treated fairly, empowered, and able to flourish" and inward behaviours that "require a hard look at who you are and your inner ability to act courageously, learn, and self-reflect."[196] The rest of Section II provides leaders with outward actions for company culture change and equitable accommodations. This opportunity focuses on "inward" actions. Research suggests that to increase inclusion and retention, leaders should "lean in" with curiosity, humility, and courage.[197] To act with curiosity, leaders can listen and learn from their diverse employees and question the way they frame diversity issues. To act with humility and courage, leaders can take risks by holding themselves accountable, openly discussing their mistakes and encouraging team members to speak freely.[198] Leaders could, for example, use an anonymous survey or online facilitation tool such as Jamboard to gather feedback.

[196] Dnika J. Travis et al. "Getting Real About Inclusive Leadership: Why Change Starts With You" *Catalyst* (2019), https://www.catalyst.org/research/inclusive-leadership-report/

[197] Dnika J. Travis et al. "Getting Real About Inclusive Leadership: Why Change Starts With You" *Catalyst* (2019), https://www.catalyst.org/research/inclusive-leadership-report/; Kenna Cottrill et al. "How Authentic Leadership and Inclusion Benefit Organizations," ed. Dr Johanna Hofbauer and Dr Astrid Podsiadlowski, *Equality, Diversity and Inclusion: An International Journal* 33, no. 3 (January 2014), https://doi.org/10.1108/EDI-05-2012-0041

[198] Kenna Cottrill et al. "How Authentic Leadership and Inclusion Benefit Organizations," ed. Dr Johanna Hofbauer and Dr Astrid Podsiadlowski, *Equality, Diversity and Inclusion: An International Journal* 33, no. 3 (January 2014), https://doi.org/10.1108/EDI-05-2012-0041; Dnika J. Travis et al. "Getting Real About Inclusive Leadership: Why Change Starts With You" *Catalyst* (2019), https://www.catalyst.org/research/inclusive-leadership-report/

HELCIM is Calgary-based a credit card processing and merchant services company that cultivates a culture of equity and transparency. The CEO Nic Beique launched a Diversity, Equity, and Inclusion Survey in 2020 to gather data on what the strengths and weaknesses of the organization. Questions gauged the extent to which employees feel they "can voice a contrary opinion without fear of negative consequences," the fairness of promotion decisions, and the recognition of "who I really am."

Challenge: Workplace Culture

Challenges in Workplace Culture: Community and Belonging

Tech companies in the U.S. and Canada are often linked to heteronormative and masculine workplace cultures.[199] Such workplaces use cultural terms such as "bro," "dude," "geek," among others that can make tech a "chilly environment" for people of marginalized genders.[200] Other factors can include masculine-coded rewards, discussion, as well as community and relationship-building exercises. Many of ICTC's interviewees, for instance, noted frustrations with gender-coded rewards, such as "tickets to a hockey game," and dialogues permeated with sports analogies. Other focus group participants noted the need to become fluent in "bro-y" relationship-building activities such as "learning how to play golf." This is not to say that people of marginalized genders cannot enjoy masculine-coded activities. Instead, these complains highlight the prevalence of explicit gender-coding in tech workplaces and the systemic scarcity of gender neutral or feminine relationship-building options.

These company cultures can exclude people of marginalized genders and lower feelings of community and belonging. One study characterizes workplace culture as a "spectrum of belonging," where the more different an employee is from the "ideal tech worker," (in some workplaces, a white, cis gender straight man) the lower they fall on the spectrum of belonging and the less they will feel part of a community.[201] For example, a white, cisgender, heterosexual woman will appear higher on the spectrum of belonging, and therefore may feel more of a sense of community than a Black, bisexual, nonbinary person. Recent surveys, such as a 2021 Stack Overflow user survey, support this theory. While 45% of men consider themselves to be part of the Stack Overflow community for software developers, these results drop to only 35.4% for women and to 28% for GNC people.[202] LGBTQI2S+ respondents to the BC Tech Association's 2021 provincial survey, also reported feeling "unwelcome" and uncomfortable in the workplace due to bro culture in the tech ecosystem.[203]

Interviewees link higher levels of workplace cultural exclusion to intersectional identities. For example, one participant noted that as a newcomer to Canada, she never felt like *"part of the gang"* at her cybersecurity company due to compounded social barriers of being a woman, an immigrant, and brown skinned. Individual responses to this lack of belonging typically include masking sexual and gender-based differences and leaving the tech sector.[204]

[199] Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590.

[200] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf; Jane Jorgenson, "Engineering Selves: Negotiating Gender and Identity in Technical Work," *Management Communication* 15 (February 1, 2002): 350–80, https://doi.org/10.1177/0893318902153002; Ryan A. Miller et al., "'It's Dude Culture': Students with Minoritized Identities of Sexuality and/or Gender Navigating STEM Majors," *Journal of Diversity in Higher Education* 14, no. 3 (2021): 340–52, https://doi.org/10.1037/dhe0000171; Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

[201] Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

[202] "2021 Developer Survey," *Stack Overflow online*, 2021, https://insights.stackoverflow.com/survey/2021#overview

[203] Jacob Clark Blickenstaff, "Women and Science Careers: Leaky Pipeline or Gender Filter?," *Gender and Education* 17, no. 4 (October 2005): 369–86, https://doi.org/10.1080/09540250500145072; Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

[204] Jacob Clark Blickenstaff, "Women and Science Careers: Leaky Pipeline or Gender Filter?," *Gender and Education* 17, no. 4 (October 2005): 369–86, https://doi.org/10.1080/09540250500145072; Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

SPOTLIGHT

Masking Queer and Nonbinary Identities, Expression, and Presentation

Masking sexual and gender-based differences in tech workplaces is an attempt by people of a marginalized gender(s) to fit in through "performance" and expression of bro and geek masculinity.[205] One study examining heteronormativity in engineering, for instance, found that lesbian, gay, and bisexual students could "pass" as heterosexual in part by "downplaying cultural characteristics associated with LGB identities."[206] An older study on trans men found that if trans men present as masculine, they immediately received benefits, including higher pay and more respect.[207] On the flipside, other studies document trans women losing positions of power after they reveal their gender identity.[208] Although gender-masking can provide some benefits, these "strategies reinforce rather than undermine male privilege." [209] It is also important to note that one U.S. study found the benefits associated with masculine and heteronormative presentation are likely limited to white and AAPI (Asian American Pacific Islander) women.[210]

Queer and nonbinary study participants also reported masking differences to fit in to pre-established community and company culture norms:

> "For most of my life and my career, I was not out. You constantly feel like you have to keep your private life to yourself.... Straight people can just speak openly about their lives and not fear judgment. [My silence] would cut off any avenues to deeper friendships that could lead to better opportunities in the future."

> "My colleagues know that I use 'them' [pronoun]... but it's just easier in my work to not have to correct people than keep it up."

[205] Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590; "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

[206] Erin A. Cech et al. "Navigating the Heteronormativity of Engineering: The Experiences of Lesbian, Gay, and Bisexual Students," *Engineering Studies* 3, no. 1 (April 2011): 1–24, https://doi.org/10.1080/19378629.2010.545065

[207] It is important to note that trans men also face many distinct barriers in the workplace. Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

[208] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf; Bretton Fosbrook, "Working beyond the Gender Binary," *Gender and the Economy*, last modified October 2019, https://www.gendereconomy.org/working-beyond-the-gender-binary/

[209] Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

[210] Ibid.

Beyond the relationship dimension, interviewees noted that identity and gender-masking can have a negative psychological effect. For example, one interviewee noted that being misgendered *"doesn't feel good."*

Opportunity: Developing Inclusive Support Systems and Communities

To retain people of marginalized genders in tech, it is important to create a workplace culture that supports personal differences and provides opportunities for community-building. In addition to heightened feelings of inclusion and acceptance, workplace cultures that support diverse employees are linked to higher levels of job satisfaction and worker retention.[211] In line with this research, ICTC's 2020 survey of tech employers found that 85% of respondents agreed supportive workplace cultures are important for gender equity in tech. Despite this support, only 32% of surveyed organizations would characterize their workplace culture as supportive for women. These numbers are likely significantly lower for culture supports aimed at GNC employees.[212]

[211] Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

[212] According to BC Tech Association's recent study on the experience of LGBTQI2S+ community, "EDI initiatives towards 2SLGBTQ+ employees generally lag behind larger efforts for inclusion within organizations and the tech industry"; "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

Supportive Culture, Importance vs. Implementation

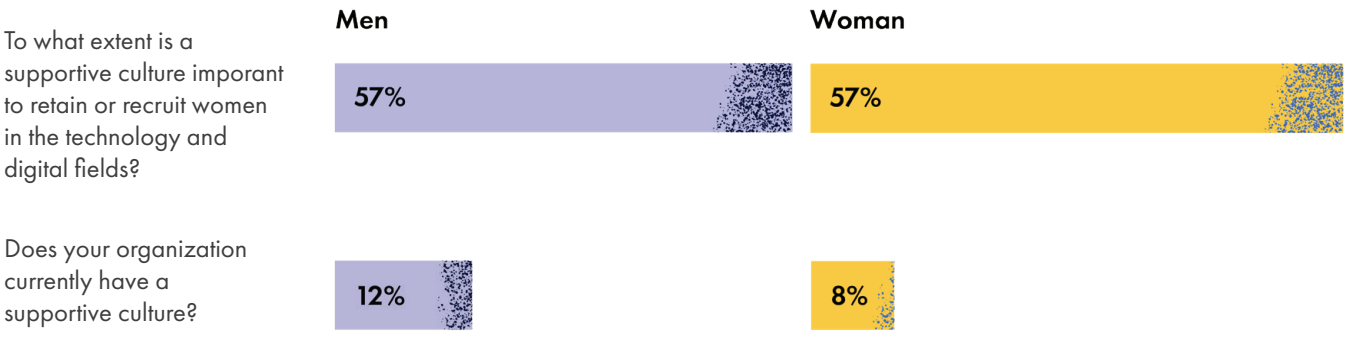


Figure 11: Source: ICTC 2020 survey of women in tech.

A popular solution that creates a more inclusive workplace for marginalized workers are Employee Resource Groups (ERGs). ERGs are "voluntary, employee-led diversity and inclusion initiatives that are formally supported by an organization."[213] Many studies link the creating ERGs to more inclusive workplaces for women and BC Tech Association's recent survey found that 55% of LGBTQI2S+ respondents were interested in ERGs.[214, 215] For example, Trans at Google is an ERG that advocates for trans, genderqueer, genderfluid, agender, gender variant, intersex, nonbinary, and gender-questioning employees.[216] In addition to improving feelings of inclusion and safety, ERGs can help employees advocate for workplace policies that help create inclusive cultures for GNC individuals such as all-gender bathrooms and gender-neutral dress codes.[217] Smaller tech companies and start-ups that may not have the resources to support an ERG can instead provide employees with dedicated time to interact with external ERGs dedicated to diversity advocacy and networking.[218] Interviewees also mentioned that workplaces can conduct internal analyses to identify and counteract common gender-coded rewards and dialogues.

[213] "Human Resources Gartner Glossary," *Employee Resource Group* (ERG) (blog), last accessed February 2022, https://www.gartner.com/en/human-resources/glossary/employee-resource-group-erg-

[214] For example, Molly Contini et al. "Diversity, Equity and Inclusion Policies in Canadian Small-to-Medium Sized Enterprises within Science, Tech, Engineering and Skilled Trades," *Community Engaged Scholarship Institute* (2019), https://atrium.lib.uoguelph.ca/xmlui/handle/10214/26770.

[215] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf.

[216] "Google's Diversity, Equity, Inclusion," *Support Grassroots Employee Communities* (blog), last accessed February 2022, https://diversity.google/commitments/.

[217] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf.

[218] Molly Contini et al. "Diversity, Equity and Inclusion Policies in Canadian Small-to-Medium Sized Enterprises within Science, Tech, Engineering and Skilled Trades," *Community Engaged Scholarship Institute* (2019), https://atrium.lib.uoguelph.ca/xmlui/handle/10214/26770.

Challenges in Workplace Culture: Opportunities and Promotions

Gender can asymmetrically limit the career advancement and promotion opportunities for tech employees of marginalized genders. Several analyses show that the tech sector tends to support the promotion of men over equally qualified women.[219] ICTC's 2020 survey of tech employers found that only 36% of women believe that men and women are provided with the same opportunities, whereas 73% of men believe this to be true. For openly trans employees, this lack of career advancement opportunities is likely even more stark. A 2021 survey of trans employees across all sectors by McKinsey and Company found that 36% of respondents reported their gender identity limited their ability to get promoted.[220] Another 2021 survey by the BC Tech Association found that 13% of LGBTQI2S+ respondents reported they were "passed up for a promotion."[221]

In practice, these limits are linked to the **evaluation criteria for and format of promotional processes**. For instance, since women are more likely to opt into flexible work schedules and have longer gaps

[219] For example: Adriana Gascoigne et al. "Repairing the broken rung on the career ladder for women in technical roles," *McKinsey and Company* (March 2022), https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/repairing-the-broken-rung-on-the-career-ladder-for-women-in-technical-roles;

[220] David Baboolall et al. "Being Transgender at Work," *McKinsey and Company* (November 2021), https://www.mckinsey.com/featured-insights/diversity-and-inclusion/being-transgender-at-work.

[221] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

between formal employment, research shows they are more likely to be overlooked for promotion.[222] As an ICTC focus group participant explained, *"those years that [minority and immigrant workers] have been away might be used against them when it comes to promotions."* In addition, "opt-in" promotion structures can limit opportunities for people of marginalized genders.[223] Opt-in promotion structures require employees to put themselves forward for promotion opportunities, rather than employees being automatically considered for these opportunities. In part, these opt-in promotion practices fail because they "favour those who are overconfident or like to compete" (typically men).[224] People of marginalized genders tend to be ess likely to "opt-in" to a promotion opportunity.

Along with unexamined promotion policies and theories, **gender biases in informal workplace relationship development** can also limit career advancement opportunities for people of marginalized genders in tech. Research shows, for example, that women tend to have fewer opportunities for promotions than cisgender men, in part because male managers are less comfortable working with women than men.[225] Indeed, one 2019 report on diversity, equity, and inclusion policies in Canadian SMEs found that just under 50% of male managers are not comfortable "participating in common work activities with a woman at work."[226] ICTC's focus group participants similarly noted that relationships can determine promotions: *"The stronger the relationship, the more you will have opportunities to get promoted because that's who the boss knows."* Another focus group participant noted that this relationship bias is compounded by the reality that fewer women are in senior management positions, so *"fewer women accompany these colleagues on their journey."* An even lower representation of GNC tech workers at senior levels than women could potentially exacerbate the opportunities for promotion among GNC individuals.[227]

[222] Molly Contini et al. "Diversity, Equity and Inclusion Policies in Canadian Small-to-Medium Sized Enterprises within Science, Tech, Engineering and Skilled Trades," *Community Engaged Scholarship Institute* (2019), https://atrium.lib.uoguelph.ca/xmlui/handle/10214/26770

[223] Joyce C. He and Sonia K. Kang, and Nicola Lacetera, "Opt-out Choice Framing Attenuates Gender Differences in the Decision to Compete in the Laboratory and in the Field," *PNAS* 118, no. 42 (2021), https://www.pnas.org/doi/abs/10.1073/pnas.2108337118

[224] Ibid.

[225] Molly Contini et al. "Diversity, Equity and Inclusion Policies in Canadian Small-to-Medium Sized Enterprises within Science, Tech, Engineering and Skilled Trades," *Community Engaged Scholarship Institute* (2019), https://atrium.lib.uoguelph.ca/xmlui/handle/10214/26770

[226] Ibid.

[227] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

Opportunity: Making Career Advancement Opportunities Equitable

To help retain people of marginalized genders, tech employers can mitigate bias in existing career advancement processes by **auditing employee evaluations for gender bias**. One of the first steps employers can take is to analyze promotion rates at each level by gender, race, and sexuality.[228] Depending on results, this analysis can identify where promotion recommendations may not be purely based on merit. Employers can also analyze employee performance review criteria to ensure the indicators used are not biased (e.g., if flexible schedules or resume gaps are weighted in the evaluation). Further, employers can adopt "rational documents" that require managers to write out their reasoning behind promotion decisions.[229] These documents both help slow down the evaluation process, making it easier for managers to identify bias and emphasize to managers that employee evaluations (and resulting promotions) should be results based.[230] In addition, to ensure that employees of marginalized genders do not self-eliminate from promotion opportunities, tech employers can leverage career advancement processes such as "opt-out" promotions. These "opt-out" formats automate the employee review process by making it more difficult for people of marginalized genders to deselect themselves.[231]

To mitigate gender-biased promotions based on informal relationships, tech businesses can also **adopt formal mentorship and sponsorship models**.[232] Studies from several organizations including McKinsey & Company find that formalized sponsorship by senior leaders is the most influential factor in overcoming gender-based gaps in promotions.[233] Sponsors can, for example, act as champions for people of marginalized genders who are deserving of promotion and help mentees receive assignments that will develop the work skills required for promotions.[234] As one interviewee put it, *"We need to have consistent mentorship baked into every step [of career development]."* ICTC focus group attendees also suggested that tech employers encourage and provide time for gender-diverse employees to take part in external mentorship programs designed for people of marginalized genders, including Calgary-based Chic Geek's "Career Pathing Program" that supports strategic networking.

[228] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf
[229] Ibid.
[230] Ibid.
[231] Joyce C. He et al. "Opt-out Choice Framing Attenuates Gender Differences in the Decision to Compete in the Laboratory and in the Field," *PNAS* 118, no. 42 (2021), https://www.pnas.org/doi/abs/10.1073/pnas.2108337118
[232] Molly Contini et al. "Diversity, Equity and Inclusion Policies in Canadian Small-to-Medium Sized Enterprises within Science, Tech, Engineering and Skilled Trades," *Community Engaged Scholarship Institute* (2019), https://atrium.lib.uoguelph.ca/xmlui/handle/10214/26770
[233] Ibid.
[234] Ibid.

It is important to note that in-house sponsorship and mentorship programs that exclude men (instead of targeting GNC or women employees) may be less successful than programs that include employees of all genders.[235] This is partly because programs that exclude men may not give employees of marginalized genders access to men as mentors.[236]

[235] Molly Contini et al. "Diversity, Equity and Inclusion Policies in Canadian Small-to-Medium Sized Enterprises within Science, Tech, Engineering and Skilled Trades," *Community Engaged Scholarship Institute* (2019), https://atrium.lib.uoguelph.ca/xmlui/handle/10214/26770
[236] Ibid.

KPMG CANADA is the domestic arm of the global accounting and professional services firm. This Toronto-based group recently created a unique initiative to tackle subconscious bias, in which employees act as "Bias Challengers" in performance or employee evaluation meetings. These Challengers will take part in national training sessions and then apply their knowledge in select employee evaluation meetings.

Dr. Roberta Bondar's STEM Career Development Program facilitates networking with peers and industry leaders for women, nonbinary, and gender-diverse people in STEM work fields across Canada.

SPOTLIGHT
Intersectional Impacts of Imposter Syndrome

Self-selection out of promotional opportunities can be tied to the imposter syndrome.[237] In their 2014 paper, "An Antidote to Imposter Syndrome," Jackson and Health define imposter syndrome as "a psychological phenomenon in which people are unable to internalize their accomplishments."[238] Instead of ascribing their accomplishments to ability or hard work, people experiencing imposter syndrome ascribe

[237] Karina Silveira et al., "Reinforcing Diversity Company Policies: Insights from StackOverflow Developers Survey," *Proceedings of the 21st International Conference on Enterprise Information Systems* (2019), https://doi.org/10.5220/0007707901190129
[238] Dean Jackson et al. "An Antidote to Impostor Syndrome," *The ACM Magazine for Students* 21 (December 22, 2014): 12–13, https://doi.org/10.1145/2685027

their accomplishments to other factors such as other people's kindness, mistakes, connections, luck, pretense, etc.[239]

Imposter syndrome can impact racialized women in tech and GNC tech workers more than white cisgender women. For example, a 2021 analysis of software developers in the U.S. found that respondents who "identified themselves as women, nonbinary and [trans] tend to doubt more their programming skills and believe they are not as good as their peers than respondents who identified as men."[240] Indeed, only 17% of (primarily cisgender) men agree or strongly agree that they are not as competent as their peers, compared to almost double the amount of women (30%) and 25% of nonbinary people.[241] Limited research also suggests that BIPOC women may have higher levels of imposter syndrome than white women.[242] As one interviewee noted, *"For Black women, it is an extreme imposter syndrome."* Another stressed that *"women sell themselves short, but Indigenous people do it far more."*

[239] Devasmita Chakraverty, "Impostor Phenomenon in STEM: Occurrence, Attribution, and Identity," *Studies in Graduate and Postdoctoral Education* 10, no. 1 (January 1, 2019): 2–20, https://doi.org/10.1108/SGPE-D-18-00014

[240] Karina Silveira et al., "Reinforcing Diversity Company Policies: Insights from StackOverflow Developers Survey," *Proceedings of the 21st International Conference on Enterprise Information Systems* (2019), https://doi.org/10.5220/0007707901190129

[241] Interestingly this percentage drops to only 20% for trans people; Karina Silveira et al., "Reinforcing Diversity Company Policies: Insights from StackOverflow Developers Survey," *Proceedings of the 21st International Conference on Enterprise Information Systems* (2019), https://doi.org/10.5220/0007707901190129

[242] For example: Devasmita Chakraverty et al. "The Impostor Phenomenon Among Black Doctoral and Postdoctoral Scholars In STEM," *Informing Science Institute* (2020), http://ijds.org/Volume15/IJDSv15p433-460Chakraverty6364.pdf; Mary Duenas, "You're Not Really Here Because You Deserve to Be Here: How Latinx College Students Experience Imposter Syndrome," *University of Wisconsin* (2021), https://www.proquest.com/openview/990c792352a090d3003a0ab427b50c9b/1?pq-origsite=gscholar&cbl=18750&diss=y

Challenges in Workplace Culture: Microaggressions and Accountability

Microaggressions are subtle and "often non-verbal exchanges" that diminish or disparage marginalized people.[243]

Numerous studies show that both GNC individuals and women tend to experience higher rates of microaggressions than their cisgender male colleagues.[244] For example, recent research on tech workers from the U.S. shows that "heterosexual women who were conventionally feminine experienced routine microaggressions in their interactions with their male coworkers."[245] In another (2020) study by Women in Tech World, 46% of women in tech at the Government of Canada identified "gender stereotyping and microaggression" as a career roadblocks.[246]

For women, common microaggressions include having their judgment questioned and being interrupted.[247] Much research shows that these interactions can result in "feelings of not being

[243] Katheryn Russell-Brown, *The Color of Crime (Second Edition): Racial Hoaxes, White Fear, Black Protectionism, Police Harassment, and Other Macroaggressions* (New York: NYU Press, 2009), https://muse.jhu.edu/book/10932

[244] Cherrie Lam et al. "Canada's Gender Equity Roadmap: A Study of Women in Tech," *Women in Tech World* (October 2018), https://issuu.com/womenintechworld/docs/wintechreportoct1_2018_low_rez; "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://weare-bctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

[245] Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

[246] Cherrie Lam et al. "Canada's Gender Equity Roadmap: A Study of Women in Tech," *Women in Tech World* (October 2018), https://issuu.com/womenintechworld/docs/wintechreportoct1_2018_low_rez

[247] Karsten Jonsen et al., "Diversity and Inclusion Branding: A Five-Country Comparison of Corporate Websites," *International Journal of Human Resource Management* 32, no. 3 (February 2021): 616–49, https://doi.org/10.1080/09585192.2018.1496125

[248] Cherrie Lam et al. "Canada's Gender Equity Roadmap: A Study of Women in Tech," *Women in Tech World* (October 2018), https://issuu.com/womenintechworld/docs/wintechreportoct1_2018_low_rez

"[As a woman,] you have to say [your point] 32 times to justify it."

"When as a woman you present data, it is often challenged more so than if [it were presented] male counterparts."

"When men voice dissent, they are listened to. Their voice counts. [Women] are discounted as being 'contrary.'"

taken seriously or [not] having a voice in the workplace."[248] In line with these findings, several women in tech who were interviewed for this study noted frustrations with what they perceived as subtle microaggressions relating to not feeling heard in their workplace.

Intensity and quantity of microaggressions can vary based on the employee's position on the gendered scale of belonging. While not specific to the tech industry, McKinsey's 2021 survey of women in the workplace found the highest levels of microaggressions for Black women, LGBTQ+ women, and women with disabilities.[249] Interviewees also noted that Black women can experience higher levels of microaggression and face additional variations of it in tech workplaces. For example, some Black women in tech interviewed for this study were worried about being stereotyped as the *"angry Black woman."* Several studies, including a recent survey by the Harvard Business Review, report that this stereotype is prevalent across sectors.[250]

Nonbinary people and trans people are also subject to higher levels of gender-based microaggressions in the workplace. A Harvard Business Review survey found that just under 50% of trans employee respondents (across all sectors) experienced workplace microaggressions daily, including "being the target of transphobic remarks, being ignored, or being pressured to act in 'traditionally gendered' ways."[251] BC Tech Association's 2021 study also found that 59% of LGBTQI2S+ respondents reported facing microaggressions and "subtle discrimination at work," including exclusionary language and "transphobic jokes."[252] A trans woman interviewed for this study reported facing these same microaggressions after coming out in her tech workplace. Nonbinary interviewees also described

[249] Karsten Jonsen et al., "Diversity and Inclusion Branding: A Five-Country Comparison of Corporate Websites," *International Journal of Human Resource Management* 32, no. 3 (February 2021): 616–49, https://doi.org/10.1080/09585192.2018.1496125.

[250] Daphna Motro et al., "The 'Angry Black Woman' Stereotype at Work," *Harvard Business Review*, January 31, 2022, https://hbr.org/2022/01/the-angry-black-woman-stereotype-at-work.

[251] Christian N. Thoroughgood, et al. "Creating a Trans-Inclusive Workplace," *Harvard Business Review*, March 1, 2020, https://hbr.org/2020/03/creating-a-trans-inclusive-workplace.

[252] "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

instances of microaggression in Canadian tech workplaces primarily related to misgendering. One ICTC interviewee recalled that people misgendered her without apologizing, *"so there were definitely people who I could tell weren't really into [my gender identity]."* This participant's experience is consistent with recent research about the LGBTQI2S+ experience in British Columbia's tech workplaces.[253]

While some people may not even be aware that their microaggressions are harmful, research shows that those on the receiving end can find these comments "hostile or threatening."[254] As a result, people subjected to microaggressions can feel excluded, scared, isolated, and constantly on-guard for bias in the workplace.[255] According to a 2021 McKinsey study of women in the workplace, "Women who regularly experience microaggressions are twice as likely as those who don't to be burned out, more than twice as likely to report feeling negatively about their job, and almost three times as likely to say that in the past few months, they have struggled to concentrate at work as a result of stress."[256] For trans employees, microaggressions can reduce job satisfaction and spur an inclination to quit.[257]

Opportunity: Learning About Microaggressions and Implementing Accountability Systems

Since microaggressions are often unintentional, a good first step is more education. A 2016 survey on allyship (efforts by members of a privileged in-group to advance the interests of marginalized groups) found that the top barriers to male allyship in tech are "uncertainty as to how best to be an ally" and "sustaining ally and advocacy work long term."[258] By introducing resources such as the 2021 *Micropedia of Microaggressions*, employers can help employees recognize gender-based microaggressions and become better allies. The *Micropedia* flags common microaggressions, such as "Oh, you don't look trans," and "She's so aggressive."[259] In addition to supplying employees with resources, tech employers can provide employees with access to online courses that instruct employees on how to deal with and mitigate microaggressions in the workplace, including LinkedIn's "Dealing with Microaggression as an Employee."[260] These courses and resources can further help employees become better allies when they spot

253 "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

254 Lauren Alfrey et al. "Gender-Fluid Geek Girls: Negotiating Inequality Regimes in the Tech Industry," *Gender & Society* 31, no. 1 (February 2017): 28–50, https://doi.org/10.1177/0891243216680590

255 Ibid; "Empowering Workplaces Combat Emotional Tax for People of Colour in Canada," Catalyst (blog), accessed March 22, 2022, https://www.catalyst.org/research/emotional-tax-canada/.

256 Tiffany Burns et al., "Women in the Workplace 2021," McKinsey and Company (2021), https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace.

257 Ibid.

258 Wendy M. DuBow and Catherine Ashcraft, "Male Allies: Motivations and Barriers for Participating in Diversity Initiatives in the Technology Workplace," *International Journal of Gender, Science and Technology* 8, no. 2, May 25, 2016, http://genderandset.open.ac.uk/index.php/genderandset/article/view/379.

259 "Micropedia of Microaggressions" (Canada: Black Business and Professional Association, Canadian Congress on Inclusive Diversity and Workplace Equity, Ted Rogers School of Management, *Pride at Work Canada*, December 2021), https://www.themicropedia.org/.

260 "What to Do If You Witness Microaggressions against Others," accessed March 16, 2022, https://www.linkedin.com/learning/dealing-with-microaggression-as-an-employee/what-to-do-if-you-witness-microaggressions-against-others.

gender-based microaggressions. As one of ICTC's advisory committee members emphasized, *"A lot of the C-suite are men, and they need to have the courage to recognize that this is happening and speak up and not avoid it."*

Reducing microaggressions against GNC employees may require targeted action. In BC Tech Association's 2021 survey, 66% of LGBTQI2S+ respondents reported that making workplace culture inclusive requires reducing employee "assumptions related to gender identity (e.g., assuming someone's gender and/or pronouns based on their gender expression, names, or features)."[261] To reduce assumptions, tech employers can provide specific educational materials about gender identity to employees. In addition to educational materials, employers can suggest employees of all genders voluntarily share their pronouns (e.g., through "verbal sharing during introduction, during events with a pronoun field on name cards, and on personal information records, such as email signatures or slack profiles").[262]

Employers can also make sure that they have **formal accountability systems** in place. In practice, these systems typically include formal microaggression reporting systems that uphold complainant privacy (either through HR or through an online system).[263] These systems will make it easier for people of marginalized genders to come forward with complaints. Several interviewees also emphasized the importance of instituting no tolerance for microaggressions, encouraging employers to leverage *"clear metrics to hold [employees and leadership] accountable."* As with all the opportunities for tech employers to increase gender equity, these actions require leadership commitment. In addition to microaggression reporting systems, it is of course important for anti-discrimination and anti-harassment policies to reflect Canada's human rights legislation regarding gender identity and expression.[264]

261 "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

262 As with most actions to support gender equity, it is important to "consider the larger climate of support towards trans and gender diverse individuals within an organization. Pronoun sharing can be effective in cultures where trans and gender diverse are actively supported, but may result in backlash if incorporated into less supportive cultures"; "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

263 Lily Zheng, "Do Your Employees Feel Safe Reporting Abuse and Discrimination?" *Harvard Business Review*, October 8, 2020, https://hbr.org/2020/10/do-your-employees-feel-safe-reporting-abuse-and-discrimination.

264 For more information see: Jordan Kirkness et al. "Federal Government Adds "Gender Identity" And "Gender Expression" to Canadian Human Rights Act," *Canadian Labour and Employement Law*, June 20, 2017, https://www.labourandemploymentlaw.com/2017/06/federal-government-adds-gender-identity-and-gender-expression-to-canadian-human-rights-act/

Challenge: Benefits and Accommodations

***Flexible hours, family care,* and *health and wellness policies* are effective in promoting a supportive work environment for people of marginalized genders.**

Challenges in Benefits and Accommodations: Flexible Hours and Remote Work Policies

**Due to a lack of data, it is unclear how this challenge impacts GNC candidates; however, the opportunities to improve the interview and candidate selection process (listed below) may benefit GNC applicants.*

The tech industry and tech jobs have a reputation for flexibility. In May 2020, for example, Shopify announced permanent remote work arrangements, as it became "digital-by-default."[265] Other major tech companies such as Apple, Google, and Meta offer similar hybrid and remote work options.[266] Study interviewees emphasized the flexibility of tech work: *"The tech industry had more remote work and flexible hours even prior to the pandemic, and now some of them are completely remote."*

Despite this reputation for flexible hours, remote work, and days off, tech industry employees can end up working more than workers in other industries. Sociologist Heejung Chung called this contradiction the "flexibility paradox." His 2022 book highlights an international pattern of workers with flexible hours working more weekly overtime than their counterparts with fixed schedules.[267] The "just-in-time, dynamic and immediate nature" of tech work and start-up culture can compound the negative impacts on tech workers, leading to working more throughout the 24-hour timeframe.[268] As one focus group participant commented, *"This idea of flexible hours has morphed into an excuse for overtime."*

Because women tend to do more unpaid work than men (in part, due to normative gender roles), the flexibility paradox can be further

[265] Stacey Kauk, "Does Working Remotely Mean for the Planet?" *Shopify Blog* (blog), June 2020, https://www.shopify.ca/blog/working-remotely-for-the-planet

[266] "Tech Companies Are Looking at More Flexible Work Models When Offices Reopen," *TechCrunch online*, accessed March 18, 2022, https://social.techcrunch.com/2021/06/11/tech-companies-are-looking-at-more-flexible-work-models-when-offices-reopen/

[267] Caitlin Harrington, "'Flexible Hours' Often Mean More Work—Especially for Women," *Wired*, February 13, 2022, https://www.wired.com/story/flexible-hours-mean-more-work-especially-women/

[268] Amrita Hari, "Who Gets to 'Work Hard, Play Hard'? Gendering the Work–Life Balance Rhetoric in Canadian Tech Companies," *Gender, Work & Organization* 24, no. 2 (2017): 99–114, https://doi.org/10.1111/gwao.12146

exacerbated for women tech workers. Numerous studies show that women often carry a "double burden" of working in a company for a salary and working as a caregiver at home for free.[269] For example, one study of mothers working high-tech jobs in American workplaces found that because of increased flexibility, women are often both expected to get more work done at both the office and at home.[270] As a result of this increased workload, women may struggle with higher levels of burnout, hampering their success in the workplace and making work less enjoyable.[271]

Opportunity: Creating Equitable Flexible Hours and Remote Work Policies

Despite the potential downfalls of flexibility, successful policies can harness flexibility in the service of increased employee wellbeing, job satisfaction, retention, and gendered wage parity.[272] High-profile studies in recent years have identified flexible and remote work as a key factor to improving gender equity (across sectors).[273] Indeed, many of ICTC's nonbinary and women interviewees noted that flexible hours and remote work is a priority: "*Flexibility helps.*"

The success of flexible work strategies depends on rigorous policy design and targeted actions to reduce gender bias.[274] If tech businesses already have work-from-home or flexible work policies in place, it is important to collect and analyze their impact on employees. For example, organizations can leverage employee sentiment surveys and compare the promotion rates of employers that take advantage of flexible policies to their in-office counterparts to see if disparities exist.[275] To avoid the flexible work paradox, strategies can also "increase employee control over their schedules, increase supervisor support for family and personal life, and create a cultural focused on results rather than long hours."[276] As one focus group participant put it, *"What your flexibility is and what my flexibility is are two different things. Don't expect everybody to be similarly flexible."*

[269] Anu Madgavkar et al., "The Future of Women at Work: Transitions in the Age of Automation," *McKinsey Global Institute*, June 2019, https://www.mckinsey.com/~/media/mckinsey/featured%20insights/gender%20equality/the%20future%20of%20women%20at%20work%20transitions%20in%20the%20age%20of%20automation/mgi-the-future-of-women-at-work-report-july-2019.pdf

[270] To the best of ICTC's knowledge at the time of publication there is no research analysing how heteronormative care models impact queer relationships in the tech industry specifically; Caroline Gatrell et al. "Work-Life Balance: Working for Whom?," *European J. International Management* 2, January 2008, https://doi.org/10.1504/EJIM.2008.016929; Amrita Hari, "Who Gets to 'Work Hard, Play Hard'? Gendering the Work–Life Balance Rhetoric in Canadian Tech Companies," *Gender, Work & Organization* 24, no. 2 (2017): 99–114, https://doi.org/10.1111/gwao.12146

[271] Amrita Hari, "Who Gets to 'Work Hard, Play Hard'? Gendering the Work–Life Balance Rhetoric in Canadian Tech Companies," *Gender, Work & Organization* 24, no. 2 (2017): 99–114, https://doi.org/10.1111/gwao.12146

[272] Phyllis Moen et al., "Does a Flexibility/Support Organizational Initiative Improve High-Tech Employees' Well-Being? Evidence from the Work, Family, and Health Network," *American Sociological Review* 81, no. 1 (February 1, 2016): 134–64, https://doi.org/10.1177/0003122415622391; Sylvia Fuller and C. Elizabeth Hirsh, "'Family-Friendly' Jobs and Motherhood Pay Penalties: The Impact of Flexible Work Arrangements Across the Educational Spectrum," *Work and Occupations* 46, no. 1 (February 1, 2019): 3–44, https://doi.org/10.1177/0730888418771116; Karen Holtzblatt and Nicola Marsden, "Retaining Women in Tech: Shifting the Paradigm," *Synthesis Lectures on Professionalism and Career Advancement for Scientists and Engineers* 3, no. 1 (February 27, 2022): i–274, https://doi.org/10.2200/S01153ED1V01Y202111PRO006

[273] For example: Anu Madgavkar et al., "The Future of Women at Work: Transitions in the Age of Automation," *McKinsey Global Institute*, June 2019, https://www.mckinsey.com/~/media/mckinsey/featured%20insights/gender%20equality/the%20future%20of%20women%20at%20work%20transitions%20in%20the%20age%20of%20automation/mgi-the-future-of-women-at-work-report-july-2019.pdf

[274] Phyllis Moen et al., "Does a Flexibility/Support Organizational Initiative Improve High-Tech Employees' Well-Being? Evidence from the Work, Family, and Health Network," *American Sociological Review* 81, no. 1 (February 1, 2016): 134–64, https://doi.org/10.1177/0003122415622391.

[275] Herminia Ibarra, Julia Gillard, and Tomas Chamorro-Premuzic, "Why WFH Isn't Necessarily Good for Women," *Harvard Business Review*, July 16, 2020, https://hbr.org/2020/07/why-wfh-isnt-necessarily-good-for-women

[276] Phyllis Moen et al., "Does a Flexibility/Support Organizational Initiative Improve High-Tech Employees' Well-Being? Evidence from the Work, Family, and Health Network," *American Sociological Review* 81, no. 1 (February 1, 2016): 134–64, https://doi.org/10.1177/0003122415622391

Challenges in Benefits and Accommodations: Family Care Policies

The availability of and language used in family care policies can impact tech company job satisfaction and retention rates for people of marginalized genders.[277] Family care policies can include paid childcare, elder care, compassionate or grief leave, pregnancy-loss coverage, and parental leave (including non-delivering and non-birthing parents). While small to medium businesses may not be able to implement resource-intensive family care policies, examining these challenges can help both large and small organizations develop cost-effective solutions.

For people of marginalized genders, opportunities for career advancement can conflict with family care needs. Without supportive family care policies, research shows that women often feel the need to choose between promotions and caring for their loved ones.[278] As one interviewee said, "I have made a choice not to pursue a certain promotion right now because I have a sandwich generation: senior in-laws and teenagers living with me… [Women] feel they have to make a choice between work-life balance." A focus group attendee noted similar career-life conflicts related to parenthood: "I mentor a lot of young women in their late 20s, early 30s who say, 'I'm being pushed to go for the promotion, but I'm also trying to get pregnant…' They don't know that they can do both at the same time." Anecdotal evidence suggests that these work-life balance issues also impact gender nonconforming people who plan to have children.[279, 280]

While creating additional policies to support family care can help, it is also important to focus on how the policies are framed. For example, despite best intentions, parental leave policies that only support "maternal" leave (as opposed to shared parental leave that includes non-birthing parents) can actually stunt long-term career growth and perpetuate wage gaps for women.[281] StatsCan data from 2012-2017 shows that only 3.8% of men took parental leave compared to 47% of women.[282] When women take more time off work, they tend to earn less and their longer-term career progression (and related salary increases) may be compromised.[283] As one focus group participant put it, "After we take maternity leave… that takes us out of at least one promotion cycle, and at least one salary increase cycle.

277 "How Important Are Work–Family Support Policies? A Meta-Analytic Investigation of Their Effects on Employee Outcomes," *PsycNET*, accessed March 24, 2022, https://psycnet.apa.org/doiLanding?doi=10.1037%2Fa0030389

278 Ibid.

279 Anonymous (GNC participant), in ICTC key informant interview, March 2022.

280 Several studies also link increased rates of attrition and career stagnation during the pandemic to challenges with childcare. ICTC Ontario focus group attendees confirmed that increased childcare responsibilities due to COVID-19, has had a negative impact on their career progression.

281 "Toolkit for Mainstreaming and Implementing Gender Equality," *OECD (blog)*, last accessed February 2022, https://www.oecd.org/gender/governance/toolkit/public-administration/gender-sensitive-employment-systems/work-life-balance/; "PWC's Women in Work Index 2018 - Canadian Insights," *Balancing Priorities: Life, Family and Work (blog)*, 2018, https://journals.sagepub.com/doi/abs/10.1177/0003122415622391#:~:text=Moderating%20effects%20show%20that%20STAR,can%20promote%20employee%20well%2Dbeing.

282 "PWC's Women in Work Index 2018 - Canadian Insights," *Balancing Priorities: Life, Family and Work (blog)*, 2018, https://journals.sagepub.com/doi/abs/10.1177/0003122415622391#:~:text=Moderating%20effects%20show%20that%20STAR,can%20promote%20employee%20well%2Dbeing.

283 "Toolkit for Mainstreaming and Implementing Gender Equality," *OECD (blog)*, last accessed February 2022, https://www.oecd.org/gender/governance/toolkit/public-administration/gender-sensitive-employment-systems/work-life-balance/; "PWC's Women in Work Index 2018 - Canadian Insights," *Balancing Priorities: Life, Family and Work (blog)*, 2018, https://journals.sagepub.com/doi/abs/10.1177/0003122415622391#:~:text=Moderating%20effects%20show%20that%20STAR,can%20promote%20employee%20well%2Dbeing

Then we're coming back behind in the game." It makes sense that women would not receive a promotion or salary increase while on maternity leave; however, by encouraging non-birthing parents (in addition to mothers) to take parental leave, tech employers can help ensure that not only women are adversely affected by a leave of absence. In this way, the negative impacts of shared parental leave will be more equitably distributed among men, women, and GNC individuals.

In addition, parental leave policies that use gendered language such as "maternal" and "paternal" can harm retention rates for members of the LGBTQI2S+ community.[284] Because these terms are heteronormative (assuming that all parents are mothers or fathers), policies without gender neutral or gender-inclusive language can exclude gender nonconforming employees. In line with this research, one nonbinary interviewee noted that "when I see companies flexing about their parental leave on LinkedIn, it's important to me that they mention parental leave for any gendered parent of an adoptee." Another nonbinary interviewee said: "*I think non-gendered ways of talking about parental leave are very important.*"

Opportunity: Making Family Care Policies Inclusive

The size and revenue of tech employer businesses influences the benefits and accommodations they can provide their employees. Although cost considerations are a factor, employers can still "meet in the middle" and implement or modify existing policies based on the resources available. In fact, simply using different language in family care policies can positively impact queer employees.[285] For example, Pride at Work's "Hiring Across All Spectrums" recommends using gender-neutral language in bereavement leave policies.[286] If tech employers have the resources available, they can also investigate developing flexible and gender-inclusive childcare, elder care, and compassionate leave policies to help retain tech workers of marginalized genders.

Creating inclusive parental leave policies requires more consideration. Since policies that only allow "mothers" to take

[284] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada* (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

[285] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada* (2018), https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

[286] Ibid.

a leave of absence can hinder the long-term career growth of women as well as exclude GNC employees and employees in non-heteronormative relationships, tech employers can consider implementing policy changes that encourage shared parental leave and gender-inclusive language. For example, one study found that "when men take parental leave, women are more likely to remain in full-time employment, experience a smaller wage gap, and occupy leadership and board positions."[287] To increase the effectiveness of this policy change, tech employers can also consider adding language to encourage non-birthing parents to take parental leave since research shows that cisgender men worry that taking parental leave will "signal a lack of dedication to their jobs."[288] Shared parental leave can also benefit non-heteronormative relationships by expanding coverage to non-birthing parents.[289] Other options to encourage and support equitable parental leave (more suitable for larger companies) include top-ups for government-subsidized leaves, return-to-work transition solutions, baby bonuses, paid pregnancy-loss coverage, and coparenting bonuses that include non-birthing parents.[290]

[287] Aleksandra Sagan, "Why Canadian Tech Companies Are Joining the #ShowUsYourLeave Movement," *Vancouver Sun*, January 24, 2022, https://vancouversun.com/the-logic/why-canadian-tech-companies-are-joining-the-showusyourleave-movement

[288] Chris Renz, "Five Ways Parental Leave Can Improve Culture and Increase Diversity In Organizations," *Forbes (blog)*, August 15, 2019, https://www.forbes.com/sites/forbeshumanresourcescouncil/2019/08/15/five-ways-parental-leave-can-improve-culture-and-increase-diversity-in-organizations/?sh=7befac792920

[289] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada*, 2018, https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

[290] Aleksandra Sagan, "Why Canadian Tech Companies Are Joining the #ShowUsYourLeave Movement," *Vancouver Sun*, January 24, 2022, https://vancouversun.com/the-logic/why-canadian-tech-companies-are-joining-the-showusyourleave-movement

[291] "#ShowUsYourLeave Spotlights Parental Leave and Why It's Critical Right Now," *LinkedIn Talent Blog* (blog), February 2022, https://www.linkedin.com/business/talent/blog/talent-engagement/how-hashtag-spotlights-policy-that-can-boost-retention

[292] Ibid.

BENEVITY is a Canadian software company based in Calgary, Alberta. They offer 17 weeks of parental leave and a two-week bonding break for the non-delivering parent and a coparenting bonus of one-month salary for non-delivering parents who choose to take two months or more leave.[291]

HOOTSUITE is a Vancouver-based social media management company that offers 26 paid weeks off for birthing, non-birthing, and adoptive parents, as well as six weeks paid leave for a pregnancy loss.[292]

Challenges in Benefits and Accommodations: Health and Wellbeing

High levels of work-based stress can lead to burnout and low levels of mental wellbeing.[293] According to the World Health Organization, "burnout is an occupational phenomenon resulting from 'chronic workplace stress that has not been successfully managed.'"[294] If left unmanaged, burnout can lead to low productivity, high levels of absence, and increased likelihood that employees will leave the company.[295] In fact, an international survey of tech workers in 33 countries found that approximately 40% of workers with a high risk of burnout want to quit their job. On the other hand, 76% of surveyed tech workers with low burnout levels want to stay.[296] Other international studies of tech culture factors such as the pressure to meet short deadlines, intense output demands, overtime, and organizational changes to stress, burnout, and high attrition rates.[297]

Rates of burnout may be higher for people of marginalized genders in tech because they often have to deal with additional stressors such as masculine culture, microaggressions, and lack of work-life balance.[298] One study of engineers in the U.S., for instance, found that gendered stressors are linked to higher levels of burnout for women than their cisgender male colleagues.[299] Another international survey of tech workers found that 46% of women experienced a high rate of burnout, compared to 38.2% of men.[300] Almost 70% of women also noted feeling "run-down and drained of physical and emotional energy" at the end of a work day.[301] These stress levels are also likely high for trans and GNC tech workers.[302] As one nonbinary interviewee noted, "I've definitely taken sick days off when I'm not feeling well—and it's mostly [due to mental health issues]."

Opportunity: Identifying Stressors and Implementing Supportive Policies

To improve job satisfaction and support employee wellbeing, it is important for employers to effectively manage workplace stressors. Numerous reports link the implementation of progressive workplace policies and programs for health and wellbeing with higher job satisfaction and lower levels of burnout.[303] As one study interviewee

[293] Icides Moreno Fortes, Lili Tian, and E. Scott Huebner, "Occupational Stress and Employees Complete Mental Health: A Cross-Cultural Empirical Study," International Journal of Environmental Research and Public Health 17, no. 10, January 2020, https://doi.org/10.3390/ijerph17103629

[294] "How Burnout Syndrome Fuels Turnover in Tech Companies: The State of Burnout in Tech," Yerbo, March 2022, https://f.hubspotusercontent30.net/hubfs/7677235/The%20State%20of%20Burnout%20in%20Tech%20-%202022%20Edition.pdf

[295] Ibid.

[296] Ibid.

[297] Solveig Beyza Narli Evenstad, "The Virtuous Circle of Ephemeralization and the Vicious Circle of Stress: A Systemic Perspective on ICT Worker Burnout," Futures, Futures of Society: The Interactions Revolution, 103 (October 1, 2018): 61–72, https://doi.org/10.1016/j.futures.2018.03.013

[298] Dominic-Madori Davis, "Some Black Women Feel Safer Working from Home and Are Opting out of Office Life to Escape Workplace Racism," Business Insider (blog), July 2021, https://www.businessinsider.com/working-from-home-is-beneficial-to-some-black-women-2021-7

[299] Sigalit Ronen and Ayala Malach Pines, "Gender Differences in Engineers' Burnout," Equal Opportunities International 27, no. 8, January 1, 2008, https://doi.org/10.1108/02610150810916749

[300] Ibid.

[301] Ibid.

[302] David Baboolall et al. "Being Transgender at Work," McKinsey and Company (November 2021), https://www.mckinsey.com/featured-insights/diversity-and-inclusion/being-transgender-at-work

[303] For example: Sarah Chapman et al., "The ROI in Workplace Mental Health Programs: Good for People, Good for Business," *Deloitte* (2019), https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/about-deloitte/ca-en-about-blueprint-for-workplace-mental-health-final-aoda.pdf

put it, "[women need] mental health supports for the workplace and for home."

Indeed, ICTC's survey of tech employers found that more than 70% of respondents identified health and wellness programs as important to recruitment and retention of women (see Figure 12 for more detail). Despite assigning health and wellbeing programs such a high level of importance, only 17% of women and 25% of men reported that these policies are in place at their organization. Pride at Work's report Hiring Across All Spectrums also highlights mental health and wellness support as important for LGBTQI2S+ employees. The study also finds that employers in Canada could improve many areas of their employee-related policies and procedures.[304]

Health and Wellness Programs, Importance vs. Implementation

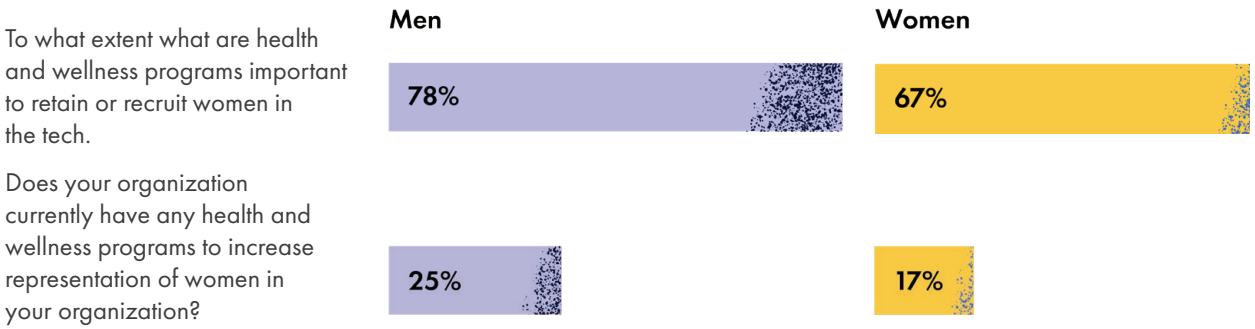


Figure 12: The importance of health and wellness programs for Canadian tech employers (%) vs. availability of programs (%). Source: ICTC 2020 survey of women in tech.

Aside from offering health insurance and complying with safety regulations, numerous strategies available to tech employers that want to support workplace health and wellbeing. A good first step is to identify what workplace stressors exacerbate employee mental health concern or cause wellbeing to deteriorate.[305] Employers can leverage anonymous surveys or conduct feedback sessions to pinpoint these stressors. After identifying key problem areas,

[304] "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada*, 2018, https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

[305] "Supporting Women's Mental Health in the Workplace," Community Support Resources in Prince George, *Canadian Mental Health Association*, accessed April 20, 2021, https://www.supportpg.ca/supporting-womens-mental-health-in-the-workplace/

research suggests that employers should focus on one or two high-impact interventions to increase chances of program success.[306] For example, if the primary finding is that employees work too much overtime, employers can ensure that job demands do not exceed employee resources to help reduce burnout.[307, 308] Encouraging employees to track and submit their overtime can also help identify who is overburdened and reduce uneven, potentially gendered work distribution issues.[309] The flexible work and family care policies and programs listed in the sections above can also help improve general wellbeing and alleviate stressors.[310] Interviewees also mentioned that open workplace-wide discussions about mental health can reduce stigma and emphasized the benefits of flexible schedules for those suffering from low levels of mental health or mental health conditions. In line with these findings, one study recommends that employers leverage "awareness campaigns and personal storytelling (especially at the leadership level) to reduce stigma" as a cost-effective method to help employees feel more comfortable seeking support when needed.[311]

SPOTLIGHT

Gender Transition and Affirming Health Care Coverage

When people do not feel connected to their assigned gender, it can impact their emotional, mental, and physical health.[312] Many aspects of gender confirmation surgeries are covered by provincial and territorial health coverage.[313] But some important procedures related to electrolysis, for example, are not covered.[314] Pride at Work's Report on Broadening Opportunities for LGBTQ2+ Jobseekers suggests that employers looking to create inclusive environments for trans employees can consider adding benefits to cover these expenses.[315] IBM, for example, provides benefits coverage for transition treatment options.[316]

While adding gender-affirming health care coverage may be easier for larger companies, there are many cost-effective strategies to support trans employees thinking about undergoing gender confirmation surgery. For example, employers can discuss the employee's specific needs and inquire how they would like the transition process to be handled.[317] For example, GNC employees may desire formal gender identity and transition disclosure processes: just under 40% of respondents to BC Tech Association's LGBTQI2S+ survey wanted

306 Sarah Chapman et al., "The ROI in Workplace Mental Health Programs: Good for People, Good for Business," *Deloitte* (2019), https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/about-deloitte/ca-en-about-blueprint-for-workplace-mental-health-final-aoda.pdf

307 "Supporting Women's Mental Health in the Workplace," Community Support Resources in Prince George, *Canadian Mental Health Association*, accessed April 20, 2021, https://www.supportpg.ca/supporting-womens-mental-health-in-the-workplace/

308 "How Burnout Syndrome Fuels Turnover in Tech Companies: The State of Burnout in Tech," Yerbo, March 2022, https://f.hubspotusercontent30.net/hubfs/7677235/The%20State%20of%20Burnout%20in%20Tech%20-%202022%20Edition.pdf

309 "Supporting Women's Mental Health in the Workplace," Community Support Resources in Prince George, *Canadian Mental Health Association*, accessed April 20, 2021, https://www.supportpg.ca/supporting-womens-mental-health-in-the-workplace/

310 For example: Phyllis Moen et al., "Does a Flexibility/Support Organizational Initiative Improve High-Tech Employees' Well-Being? Evidence from the Work, Family, and Health Network," *American Sociological Review* 81, no. 1 (February 1, 2016): 134–64, https://doi.org/10.1177/0003122415622391

311 Sarah Chapman et al. "The ROI in Workplace Mental Health Programs: Good for People, Good for Business," *Deloitte* (2019), https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/about-deloitte/ca-en-about-blueprint-for-workplace-mental-health-final-aoda.pdf

312 Cassandra Williamson-Hopp, "Benefits Canada," *An In-Depth Look at LGBTQ+ Benefits (blog)*, June 2020, https://www.benefitscanada.com/news/bencan/an-in-depth-look-at-lgbtq-benefits/

313 "Hiring Across All Spectrums: A Report on Broadening Opportunities for LGBTQ2+ Jobseekers," *Pride at Work Canada*, 2018, https://prideatwork.ca/wp-content/uploads/2018/01/PrideAtWork_2018_Round_FINAL-s.pdf

314 Ibid.

315 Ibid.

316 Ibid.

317 Christian N. Thoroughgood, Katina B. Sawyer, and Jennica R. Webster, "Creating a Trans-Inclusive Workplace," *Harvard Business Review*, March 2020, https://hbr.org/2020/03/creating-a-trans-inclusive-workplace

these processes in place.[318] Starting the discussion about employee needs can help ensure the employee feels supported and is not "'outed' without permission or before they're ready."[319] In addition, tech employers can supply information on treatment options and external support groups either online (e.g., Facebook support groups) or through local organizations such as Rainbow Health Ontario, which has a list health service providers that "either specialize in, or are affirming of, trans" employees.[320]

[318] A bonus: "2SLGTQ+ applicants interested in working at companies will look for the presence of disclosure procedures, even if they do not personally need them - it demonstrates that companies have progressive and inclusive practices"; "2SLGBTQ+ Insights Report," *BC Tech Association* (2021), https://wearebctech.com/wp-content/uploads/2021/08/2SLGBTQ_Spreads_DiscoveryParks-1.pdf

[319] Ibid.

[320] "Resources," Toronto Pflag, accessed April 25, 2022, https://www.torontopflag.org/resources

Section III:

Developing a Customizable Employer Guide

Many national and international organizations have developed toolkits, scorecards, and playbooks to increase gender equity in tech. Despite the availability of these guides and much funding dedicated to gender-inclusive strategies over the past 10 years, the number of people of marginalized genders in tech remains low.[321]

Recent studies link this failure partly to "one-size-fits-all" approaches that do not adapt to the specific industry gender nuances, let alone the diverse experiences of employees in specific tech companies.[322] **Data-driven analyses** of the specific challenge areas identified in Section II can help tech employers tailor gender equity strategies to the specific organizations and workforces.[323] Highlighting areas for change and guiding companies to integrate custom solutions to their Key Performance Indicators (KPIs) can also improve strategy adoption.[324] A study participant speaking about the tools organizations need to be successful, said, *"Customize them or provide some view to how any particular organizational culture can be reflected in this tool, so that [the tool can be] easily adopted within each broader organizational cosmology."*

The **framing and rhetoric** employers choose to employ also determine the success of gender equity strategies. For example, prescriptive strategies and tools that use "command and control" rhetoric, forcing employees to implement changes to increase gender equity, can backfire.[325] Instead, giving employees the choice whether or not to participate in diversity trainings, for example, can lead to better results.[326] Additionally, employees are more prone to resist gender strategies that are framed negatively.[327] For example, gender equity assessments that include value judgments ("good" and "bad") or that include "blame and shame" rhetoric (e.g., men are at fault for gender inequality) can be ineffective.[328] As one ICTC advisory committee member explained, *"There is a resistance with companies in terms of what they're willing to do as far as adopting certain tools. If they feel that something is a pass/fail test, they tend to shy away."* Instead, employers may find more success framing gender equity in a positive and encouraging light. For instance, they can highlight the positive impacts of gender equity strategies, rather than blaming employees for a toxic bro-culture.

321 The number of women in all jobs in the information and communication technology (ICT) sector dropped by almost 1% in 2021 to 31% from 32.1% in 2012. At the time of writing there is no comparable data for GNC individuals in Canada's tech sector; Statistics Canada, Labour Force Survey (LFS) monthly data, 2021, analysis by Information and Communications Technology Council (ICTC), https://www150.statcan.gc.ca/n1/en/catalogue/71M0001X

322 Vivian Hunt, "Delivering through Diversity," *McKinsey and Company* (2018), https://www.mckinsey.com/~/media/mckinsey/business%20functions/people%20and%20organizational%20performance/our%20insights/delidelive%20through%20diversity/delivering-through-diversity_full-report.pdf; Karen Holtzblatt and Nicola Marsden, "Retaining Women in Technology," *IEEE International Conference on Engineering, Technology and Innovation* (2018), 1–8, https://doi.org/10.1109/ICE.2018.8436351.

323 Siri Chilazi et al. "How to Best Use Data to Meet Your DE&I Goals," *Harvard Business Review*, December 3, 2020, https://hbr.org/2020/12/how-to-best-use-data-to-meet-your-dei-goals; Cindi Howson, "To Make Real Progress on D&I, Move Past Vanity Metrics," *Harvard Business Review*, May 21, 2021, https://hbr.org/2021/05/to-make-real-progress-on-di-move-past-vanity-metrics.

324 Imogen R Coe et al. "Organisational Best Practices towards Gender Equality in Science and Medicine," *The Lancet* 393, no. 10171 (February 9, 2019): 587–93, https://doi.org/10.1016/S0140-6736(18)33188-X.

325 Frank Dobbin and Alexandra Kalev, "Why Diversity Programs Fail," *Harvard Business Review*, July 1, 2016, https://hbr.org/2016/07/why-diversity-programs-fail.

326 Ibid.

327 Ibid.

328 Ibid.

Integrating **user design principles** into demand-side gender equity tools can further help with adoption. Two key principals of user design are first, making it easy for intended users to interact with the tool, and second, putting users in control of the tool.[329] Several ICTC advisory committee members highlighted that "*it is important from a user-centred design perspective to understand who this tool is being designed for.*" While most interviewees noted that change must come from the top, it is also important to tailor the tool's language to the employees who implement the changes (e.g., middle managers, HR). By adapting language, content, and form to the intended audience, tools will be easier to understand and to implement. As one advisory committee member stressed, "*We need to be using the kind of language that makes it accessible for [employees].*" Tech Manitoba, for example, has been successful with a gender-parity scorecard that tech businesses use to identify areas for improvement in organizational culture; recruitment, hiring, and retention; and capacity-building.[330]

Building on these strategy recommendations that are informed by a detailed analysis of workplace challenges and opportunities to increase gender equity, ICTC has developed a customizable employer guide to gender equity in tech (see Table 1). Tech employers that want to begin, tweak, or expand their own gender-diversity strategies can look at the list below and pick areas for intervention suitable for their organization and their workforce. To ensure they have the depth of information needed to create and implement successful strategies, tech employers can refer back to the analyses of relevant linked challenges and opportunities in Section II. ICTC will leverage this guide to develop an *Ambassador Program* that will help tech employers develop data-driven, customized, and user-friendly solutions to gender diversity issues in the hiring process and in the workplace.

[329] Nick Babich, "The 4 Golden Rules of UI Design," *Adobe XD Ideas* (blog), published October 2019, https://xd.adobe.com/ideas/process/ui-design/4-golden-rules-ui-design/
[330] "Diversity + Inclusion," *Tech Manitoba* (blog), accessed March 21, 2022, https://techmanitoba.ca/diversity-inclusion/

Areas for Interventions and Examples of Actions to Increase Gender Equity in Tech

**Actions that are marked N/A may be helpful for recruiting and retaining the population in question; however, there is not enough evidence to officially include that claim in the customizable guide.*

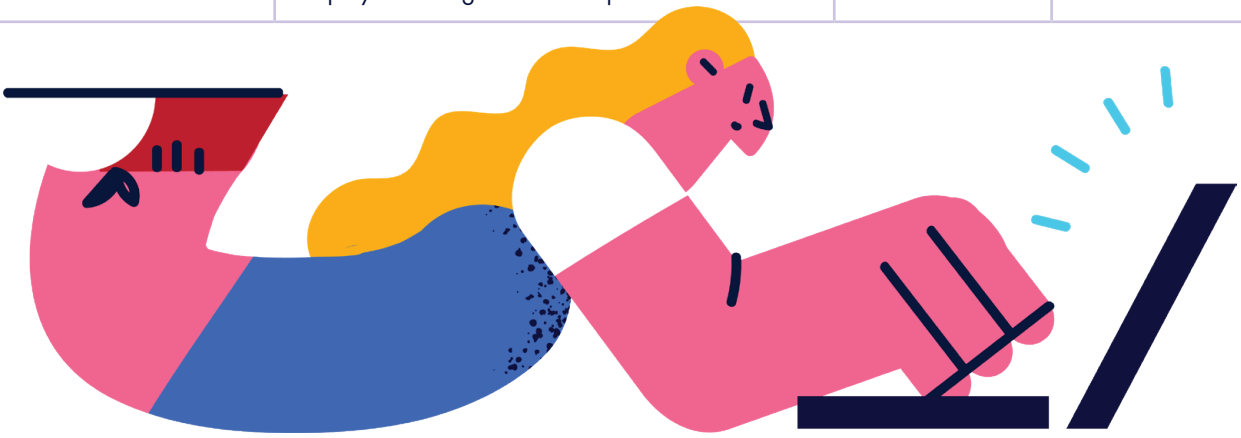
Challenge Areas	Examples of Business Opportunities for Tech Employers	Actions Impact Women	Actions Impact GNC Individuals
HIRING AND RECRUITMENT			
Signals, Language, and Employer Branding			
Website	Including profiles of diverse employees, references to valuing diversity, and/or being an equal opportunity employer on the "About" page	⚡	⚡
	Highlighting links to equitable EDI policies and training	⚡	⚡
Job posting	Editing for inclusive language in job postings using free online tools (e.g., Textio)	⚡	N/A
	Including EEO statements that specifically include trans and cis women as well as all trans, nonbinary, and gender nonconforming individuals	⚡	⚡
	Including only the skill requirements that will actually be used on the job, or posting statements that specify alternative education and skill backgrounds will be considered	⚡	N/A
	Noting that "reasonable accommodations can be provided" in the job posting such as, extended interview time, providing sign language interpreters and real-time captioning, as well as making specialized equipment available	⚡	⚡
	Expanding the gender options on online application forms to include GNC, Two Spirit, nonbinary, "prefer to self-describe," and "prefer not to respond" options, specifying that all categories are trans inclusive, having a field to type in pronouns as well as a field to type preferred or chosen names	⚡	⚡

Challenge Areas	Examples of Business Opportunities for Tech Employers	Actions Impact Women	Actions Impact GNC Individuals
HIRING AND RECRUITMENT			
Finding Candidates			
Techniques to source candidates	Developing partnerships with organizations that support gender equity (e.g., Chic Geek, Queer Tech) and university alliance groups (e.g., the University of Windsor's Women in Engineering (WiE) or McGill's Queer Engineer)	⚡	⚡
	Leveraging pre-existing social media networks for people of marginalized genders (e.g., Black Womxn in Tech (Twitter), or other Facebook and LinkedIn pages or, Slack and Discord channels)	⚡	⚡
	Sourcing gender-diverse candidates internally	⚡	N/A
Interview Process and Candidate Selection			
Question and evaluation criteria development	Standardizing a question list for all candidates	⚡	⚡
	Standardizing the value given to specific credentials and qualifications before meeting the candidates	⚡	N/A
	Introducing portfolio-based assessments during the interview	⚡	⚡
Interview environment	Increasing transparency in the interview process by providing candidates with guidance on "the skills they should emphasize; the scope of the topics, such as specific algorithms or data structures that they are expected to know; references to relevant materials"	⚡	⚡

Interview Process and Candidate Selection (cont.)			
Interviewers, hiring managers, and hiring committees	Training interviewers to recognize unconscious bias or supplying hiring committees with enough time to make informed decisions to help reduce the "cognitive habit of relying on gender stereotypes"		
	Developing techniques to mitigate the impacts of bias during the interview		
Salary Negotiation			
Salary transparency	Creating transparency about average salary for the role, for the industry, or providing the salary before negotiation begins		
	Periodically analyzing salary and bonus data to ensure employees of all genders are equally compensated		
IN THE WORKPLACE			
Leadership			
Internal work	Leaders using anonymous surveys or online facilitation tools to gather employee feedback		
	Leaders listening and learning from diverse employees when they raise issues		
	Leaders holding themselves accountable (e.g., openly discussing their mistakes and encouraging team members to speak freely)		
External work	Leaders explicitly encouraging and participating in the development of EDI policies (e.g., the workplace culture and accommodations and benefits opportunities listed below)		

Organization Culture			
Community and belonging	Conducting internal analysis to identify common gender-coded rewards, dialogues, and relationship-building exercises	⚡	⚡
	Creating and supporting employee involvement with internal and external Employee Resource Groups	⚡	⚡
	If working in-office full-time or hybrid, creating all-gender washrooms	N/A	⚡
	If applicable, ensuring dress codes are gender neutral	N/A	⚡
Opportunities and promotions	Analyzing the gender bias in promotion rates at each level by gender, race, and sexuality	⚡	⚡
Microaggressions and Accountability	Leveraging inclusive career advancement processes such as "opt-out" promotions	⚡	N/A
	Adopting internal formal mentorship and sponsorship models that target people of marginalized genders but are open to all genders, including cis men.	⚡	⚡
	Encouraging and providing time for gender-diverse employees to take part in external mentorship programs (e.g., Chic Geek's "Career Pathing Program")	⚡	⚡
	Introducing resources such as the 2021 Micropedia of Microaggressions to help employees recognize gender-based microaggressions and become better allies	⚡	⚡
	Supplying employees with the resources to participate in online courses on how to deal with and mitigate microaggressions in the workplace (e.g., LinkedIn's "Dealing with Microaggression as an Employee")	⚡	⚡

Benefits and Accomodations			
Flexible hours and remote work	If tech businesses already have work-from-home or flexible work policies, collecting and analyzing employee sentiment surveys that also consider impacts on gendered employees	⚡	⚡
	Increasing employee control over their own schedules and personalizing time-management models to suit the needs of each employee's home life	⚡	⚡
Family care policies	Ensuring that family care policies are inclusive of GNC individuals and queer relationships	⚡	⚡
	Investigating and developing flexible childcare, elder care, and compassionate leave policies based on employer capacity (top-ups for government-subsidized leaves, baby bonuses, paid pregnancy-loss coverage, and coparenting bonuses that include non-birthing parents)	⚡	⚡
Health and wellbeing	Identifying workplace stressors that exacerbate employee mental health concerns or cause wellbeing to deteriorate	⚡	⚡
	Ensuring that job demands do not exceed employee resources to help reduce burnout	⚡	⚡
	Encouraging leader-led workplace-wide discussions about mental health	⚡	⚡
	Based on employer capacity, providing benefits coverage for transition treatment options and/or creating flexible guidelines to support trans employees through a transition process	N/A	⚡



Conclusion

Gender inequity in technology is a decades-old systemic issue. Canadian employers have an opportunity to diversify their workforces, but to do so they must recognize ongoing systemic barriers to gender equity, examine the processes that shape the typical talent pool for new hires, and analyze the, at times, complex impacts of their workplace policies. No matter the organization size, Canadian tech employers now have many options for broadening the gender composition of their workforce.

This report combined a synthesis of research with new insights from Canadian tech workers and employers to illustrate how even small changes can make a significant difference in gender equity. **Section I** offered an overview of current levels of gender diversity in tech to show that gender-based marginalization is systemic across Canadian provinces and internationally. To help tech employers find gender-diversity solutions that work for them, **Section II** dove into the nuances of the key challenges and opportunities in hiring, recruitment, as well as workplace policies and programs. Through consultation with tech workers and employers across Canada, these opportunities included:

- Emphasizing the importance of inclusive language, content, and employer branding for websites and job ads
- Recommending creative methods and bias-mitigating techniques to source gender-diverse candidates
- Adopting targeted strategies to make interview environments and evaluations equitable
- Employing simple, low-cost solutions to increase transparency during salary negotiations
- Implementing leadership-driven workplace policies and programs to create an inclusive culture, ensure that gender does not influence career advancement, and improve work-life balance (e.g., equitable flexible hours, remote work, family care and wellbeing policies)

Section III condensed these findings into a customizable employer guide to facilitate flexible analysis and adoption of these gender equity strategies for tech employers.

Future research should consider more closely the differences between marginalized genders. For example, not much research is available on the experience of trans men, nonbinary, or gender nonconforming people in the tech sector or in tech roles, let alone how these experiences differ in the tech hiring process. While this study drew on relevant research and strategies from LGBTQI2S+ support organizations, the lack of relevant data may have missed nuances in the experience of some marginalized genders.

This report contributes to current research into the challenges people of marginalized genders face in Canada's tech ecosystem. With these opportunities at their fingertips, tech employers can take the lead and create more equitable, diverse, and inclusive workplaces.

Methodology

Defining the Digital Economy

The digital economy represents the sum of total employment of ICT (tech) workers across all sectors, as well as the sum of non-ICT workers within the ICT sector. In other words, the analysis both includes the accountant working for a software company and the software developer working in a Canadian bank.

Secondary Sources

Existing Literature

The qualitative and quantitative portions of this project are supported by a thorough review of available literature. The literature review helped shape research methodology and questions and provide information to help further validate findings in the report. The initial literature review helped identify advisory committee participations, focus group participants, and interviewees for the research.

Primary Research Methodology

Focus Groups

ICTC held six focus groups with 50 participants in the tech industry. Four out of six focus groups included people of marginalized genders in the tech industry and tech employers across four provinces (Alberta, Ontario, Quebec and Nova Scotia). The data was collected with interactive activities on Jamboard. The other two focus groups included Human Resources, recruiters as well as Equity Diversity and Inclusion (EDI) professionals in the tech industry. Questions included identifying the primary barriers to gender equity in tech, and crowdsourcing useful tools to integrate and retain more people of marginalized genders in tech. The focus groups helped ICTC define the key opportunities, challenges, and recommendations in Section II and III.

Key Informant Interviews

ICTC conducted 12 key informant interviews (KII) with people of marginalized genders in the tech industry. Interviews were conducted from November 2021 to February 2022. These interviews collected information on the specific barriers for people of marginalized genders in tech and their experience working in tech.

Specifically, these interviews focused on the experience of trans and nonbinary participants as well as Black and Indigenous women in tech or gender support organizations. The KIIs helped ICTC define the key opportunities, challenges, and recommendations in Section II and III.

Advisory Committee

ICTC hosted three advisory committee meetings in August, December, and February 2022, with 19 attendees (maximum 17 at one meeting). ICTC's data was presented with interactive activities on Jamboard. Advisory committee participants held influential positions such as founder, CEO, executives, and senior leaders in the tech industry as well as founders or leads in gender equity support organizations.

ICT Women in Tech Survey

In early 2020, ICTC conducted a survey of 240 representatives of Canadian digital companies across Canada with a focus on women in technology. Of these, 58% of respondents were men and 42% were women. All respondents were senior executives with significant influence on key decisions related to selection, hiring, and retaining of employees in the organization. They included founders, executives, managers with oversight of operations or Human Resources. The survey targeted digital businesses across Canada in four categories: Technology (e.g. computer science, information technology, programming, coding etc.); Financial Services/Insurance, Engineering (e.g. electrical, mechanical, civil, computer, geotechnical, environmental, chemical, architectural, biomedical); Science (e.g. Astronomy, biology, chemistry, geology, physics, pharmacology, aerospace, medical sciences, biotechnology); and Math (e.g. banking, strategic consulting, accountant, bookkeeping, market research etc.).

Limitations

While efforts were made to mitigate potential biases, there are certain limitations that may be inevitably embedded in this study.

Study Scope

In line with WAGE's recommendations for gender-based analysis plus (GBA+) analysis and recent actions to include GNC individuals in various surveys and analyses from the Government of Canada, this study includes insights and potential actions to help GNC individuals in tech. While this decision was made to ensure that the program component of this project reaches some of the populations that need the most support (e.g., nonbinary individuals), some members of ICTC's advisory committee cautioned that including gender identities other that "woman" may dilute the study's potential impact.

On the other hand, some research shows that including GNC individuals in studies with women risks diminishing the unique experiences of GNC individuals. ICTC attempted to mitigate this potential issue by specifically differentiating the experience of and opportunities for business to support GNC individuals. Nonetheless, at times the report may slip into the gender binary perspectives due to lack of available primary and secondary research.

Qualitative Insights

While ICTC made a concerted effort to speak with a diverse range of women in tech, the trends identified through key informant interviews and advisory committee meetings should be interpreted only as the experiences of those interviewed. In total, there were 81 study participants: 12 interviewees, 19 advisory committee members, 35 provincial focus group attendees, nine education transition/EDI focus group attendees, and six tech company Human Resources and recruiting focus group attendees. 95.1% of the study participants were women. It is important to note that this sample is too small to be considered representative of the industry.

ICTC's study included four GNC individuals working in tech: 4.9% of total participants. For context, looking at available self-reported data from Cord and StackOverflow in the U.S. (referenced earlier in this study), the highest percentage of their total users that are GNC is just under 2%. That said, because ICTC only interviewed four GNC individuals the sample is far too small to be considered representative. To mitigate this challenge, ICTC made sure all recommendations for GNC individuals are aligned with existing research.

ICT Women in Tech Survey

The ICTC survey cited throughout this report was conducted in early 2020 (before this study began), so it does not include questions specifically related to trans women and men or GNC individuals. ICTC has tried to offset this lack of data by including secondary research from relevant sources.

Measuring "Size" of the Tech Sector and "Share" of Women

To define the tech industry in this report and the proportion of women in tech, ICTC utilized a combination of secondary and primary research to estimate the size of the industry in Canada. While ICTC was and will continue to track this data over time, it is possible that the overall size of the industry and the share of women and marginalized genders in tech is smaller or larger than the initial estimates. Moreover, the data on marginalized genders in tech is very limited on the global, national, and provincial levels and may be unreliable.