

**Diversity, Equity and Inclusion within STEM in Canada:
A Literature Review**

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Introduction

The conversations around diversity, equity and inclusion (DEI) are not new and neither is diversity work a recent conversation. However, workplace DEI practices have gained traction in the recent past as racial hiring and/or retention practices and data surrounding lack of diversity and inclusionary practices within organisations have become public. This paper focusses on a literature review of DEI recruitment practices using software within STEM organisation in Canada. The first section will define the three terms within DEI and examine their relevance. This will be followed by looking at various equity-deserving groups identified and the specific issues that occur for these groups.

The research then focusses on DEI within hiring practices, why DEI is important to recruitment, retention, and revenue within STEM, understanding the challenges recruiters face when hiring for diversity and, successful DEI recruitment practices at various stages of the recruitment process. An important part of addressing challenges includes the use of software. Therefore, a summary of some prominent tools and technologies is included. It is apparent that within the global context, Canada seems to lag behind other parts of the world when it comes to use of DEI technology so a brief comparison with the US on DEI recruitment is provided. This paper concludes with likely reasons why some DEI efforts fail and ideas for the way forward.

Diversity, Equity and Inclusion and its relevance

Diversity is defined as the demographic mix of the community, with a focus on the representation of equity-deserving groups. Equity on the other hand, is a fair treatment of all people. Inclusion goes a step further to create an environment where everyone feels welcome, is treated with respect and feel like they have a voice and can participate (University of Toronto, n.d.). These definitions highlight that the three concepts are interconnected yet require substantially varied and focussed effort to accomplish them. This becomes evident when one examines DEI initiatives within STEM organisations.

Having gained traction, it is imperative to ask why DEI initiatives and results are an important focus for organizations and leadership within organizations. There is substantial evidence that demonstrates the benefits of a diverse workforce and the risks associated with a homogenous workforce (Finkel, 2020). A McKinsey report published in 2020 confirmed that the most diverse companies are now more likely than ever to outperform less diverse companies on profitability (McKinsey and Company, 2020). Since a lot of work within tech companies is done as part of teamwork, there is a higher likelihood of more creative, productive, and fact-based scientific and technical innovations coming forth with a more diverse group of problem solvers.

DEI work is not just crucial for profitability but is also shown to have great impact with respect to recruitment and retention work. Jobseekers look for more diverse workforces, while employees prefer working for companies that have increased their DEI efforts¹. With regards to DEI initiatives, large number of companies have started offering mental and physical health support. This has led to a higher employee performance and retention². Further, there is evidence to suggest that even consumers are becoming more informed in their choices by purchasing goods and services from companies who have better DEI and sustainability efforts.³ Making consumer purchases heavily

¹ 67% of jobseekers look for workplace diversity when considering a job offer – what’s more, over 50% of employees want their current employer to increase DEI efforts in their organization (Human Resource Director, 2021)

² Gartner analysis shows that employees who utilize these benefits report 23% higher levels of mental health, 17% higher levels of physical health and are 23% more likely to say they sleep well at night. These.

³ Over 86% of respondents have indicated that they will decide whether or not to do business with a company based on its credentials with climate change, DEI initiatives, and ethical and sustainable practices (Venture Beat, 2022).

influences by the practices of a company. Thus, DEI has profound impact on corporate outcomes with respect to recruitment, retention, and revenue, making it an underutilised resource yet to be harnessed. This attempts to answer the question of why DEI should be an important focus for companies in terms of their hiring and retention policies. However, it would be essential to understand the different equity-deserving groups and the specific issues that they face regarding barriers to finding jobs and inclusive practices within companies.

Equity-deserving groups within STEM

Tech occupations have grown in Canada since 2016 by around 24% and the salaries of tech employees is also higher than those who belong to the non-tech sector (Brookfield Institute, 2019). Canada’s tech talent is a vital engine of economic growth⁴. They tend to be highly educated and earn significantly higher salaries than the rest of the labour force. At first glance, tech workers are also diverse. They come from many different backgrounds and can be found working in cities and industries across Canada. In aggregate, visible minorities and immigrants participate in tech occupations at higher rates than their non-immigrant and White counterparts. However, there exists a vast gap within these sectors for those belonging to different equity-deserving groups. The paper will briefly discuss the different equity-deserving groups and the glaring issues that they face within STEM companies.

Gender

From a gender perspective, women are nearly four times less likely to be employed in tech jobs than men. While 7.8 percent of all employed men in Canada are employed in technology intensive occupations, only 2.1 percent of all employed women are in these occupations (Hays, 2021). See **Figure 1** below to see the difference in the number of people employed in the tech sector in Vancouver. The gap between men’s and women’s tech employment is consistent across all racial groups. Income inequalities in the tech sector by gender are also stark⁵. In short, while Canada’s technology-intensive occupations reveal a large gender deficit, they tend to be more racially diverse than the employed labour force (BC Tech Association, n.d.).



Figure 1: Participation and pay gap for women in Vancouver, BC. Source: <https://brookfieldinstitute.ca/wp-content/uploads/FINAL-Tech-Workers-ONLINE.pdf>

For recruitment of those belonging to LGBTQIA+ groups, research reveals that additional data is available in terms of retention policies of companies rather than recruitment. This might be reflective of the idea that people might hesitate to share their identity with others in the company during the recruitment process. To highlight the bias within STEM, LGBTQ+ professionals are 30% more likely

4 In 2016, there were 935,000 tech workers in Canada, and this number is likely to grow (Human Resource Director, 2021)

5 In 2016, men in Canada earned an average of \$17,954 CAD or 47 percent more in wages, salaries, and commissions than women in Canada. The differences were largest in Alberta (with men earning \$32,525 CAD more on average than women) and Newfoundland and Labrador (\$23,446 CAD) (Human Resource Director, 2021)

to experience harassment at work which results in depression (Denio Lourenco, 2021). The recruitment practices of diverse talent, hence, goes hand-in-hand inclusive retention policies.

Race

Another group that comes across as a striking feature of the tech employment is that of racialized minorities who are nearly two times more likely to be employed in technology-intensive occupations than those who do not identify as racialized minorities. Even though visible minorities are more likely to work in the tech sector in comparison to other sectors, they still struggle with large pay gap. Racial minorities in the tech sector earn much lesser than non-visible minorities (see **Figure 2**) within the tech sector. Despite high participation rates overall, visible minorities earn less than non-visible minorities in tech occupations and certain groups are notably equity-deserving Canadians whom Statistics Canada refers to as “visible minorities” earned \$8,959 CAD less than those not considered visible minorities in 2016 (Brookfield Institute, 2020). **Figure 3** reflects the gender pay gap and for those who belong to the visible minorities group in the 5 metropolitan areas of Canada.

Vancouver	Visible Minority	Not a Visible Minority
Number in Tech	37,710	42,050
Share in Tech	47%	53%
Participation in Tech	6.3%	5.8%
Average Pay in Tech	\$73,100	\$87,300
Average Pay in Non-Tech	\$38,300	\$55,800

In terms of the pay difference that exists between tech workers with a visible minority identity, we found that tech workers in Vancouver make **\$14,000 less** than their non-visible minority counterparts.

Figure 2: Pay gap and participation difference for visible minorities in Vancouver, BC. Source: <https://brookfieldinstitute.ca/wp-content/uploads/FINAL-Tech-Workers-ONLINE.pdf>

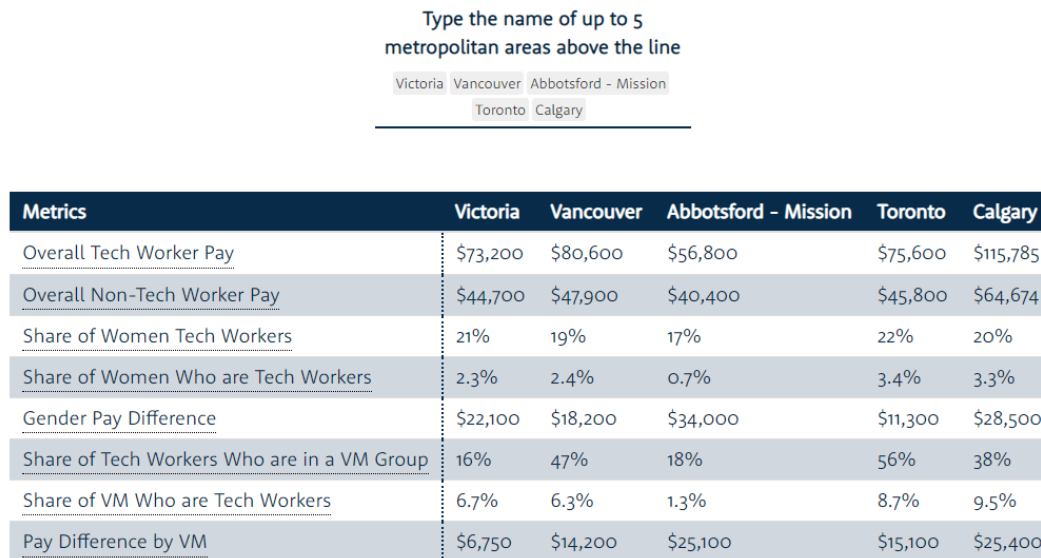


Figure 3: Pay gap across gender and visible minorities in 5 metropolitan areas of Canada. Source: <https://brookfieldinstitute.ca/wp-content/uploads/FINAL-Tech-Workers-ONLINE.pdf>

Within Canada, a large body of work in DEI recruitment focus on indigenous groups. However, this research focuses more on secondary and post-secondary education access and completion. Only 4.13 percent of the Indigenous labour force has post-secondary education in STEM compared with 10.36 percent of non-Indigenous Canadians (Statistics Canada, 2016). This is reflected in the glaring issue

of Indigenous youth dropping out of higher education which is not inclusive for people from such marginalised categories (Cech, E. & Waidzunus, 2020).

Even though Indigenous people make up 4% of adults in Canada, less than 2% are employed in the STEM sector (The Conference Board of Canada, 2020). A large part of the research in this area focusses on Indigenous students dropping off from STEM education leading to lack of formal qualifications to be accepted in post-secondary education within STEM fields (see **Figure 4**). There are multiple reasons identified for this – systemic barriers, lack of role models, lack of community support, financial and access to resources. Work on some of these issues requires working with government, communities, and authorities. Noting that these are systemic issues, changes can sometimes be beyond a company’s and software’s ability to change or influence.

Exhibit 1
The pool of candidates shrinks as learners opt out of STEM subjects

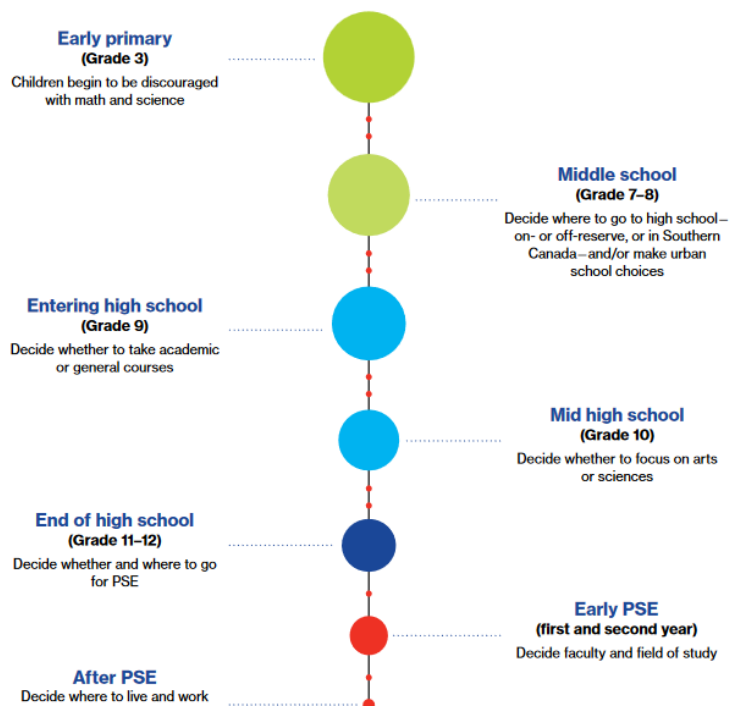


Figure 4: Indigenous people within STEM. Source: https://fsc-ccf.ca/wp-content/uploads/2020/07/24559_10697_incorporating-indigenous-culture-and-realities_primer.pdf

Other

Age: The average age of employees in leading tech companies are within a range of 28-33 years (Girls in Tech, n.d.). This is representative of the fear that workers have of losing their jobs because of their age (Brookfield Institute, 2020). However, when looked at from the perspective of intersecting identities, older white men are seen to move up the corporate ladder and hence this data must be understood from the lens of intersecting identities of gender and people of color.

Immigrants: Many immigrants are employed within the tech-sector as compared to non-tech and these are mostly people with higher degrees (Masters and/or doctoral). Though, relative to the Canadian-born in similar fields and with similar levels of education, immigrants with bachelor’s degrees had considerably lower skill utilization rates and earnings outcomes compared with those with doctoral degrees. For example, immigrant STEM bachelor’s degree holders earned 32% less than their Canadian-born counterparts (Brookfield Institute, 2020).

Disability: People with physical disability often face challenges in pursuing STEM degrees and are equity-deserving groups in the STEM fields. However, this bias exists more for people who struggle with mental health or neurodiversity as compared to those with physical disability (Dana Wilkie, 2014).

As discussed before, the tech sector development is on the rise which is an opportunity to have more inclusive practices from a diverse pool of people and ensuring equity practices. Given our discussion on the reason why diversity in STEM is essential for its growth, creating an environment where people have access and opportunities for participation, regardless of their identity groups. This should be seen to drive growth within the tech sector which in turn results in upward economic mobility of the country. Therefore, the changing within DEI recruitment, even though identified as important for various reasons as highlighted before, still remain in their nascent stages. These practices are relatively new, have a slow progression, not effective enough or do not include substantial long-term systemic changes.

Challenges for recruitment

At an organisational level, there are multiple challenges to diversity recruitment. Some prominent ones are – lack of avenues to source diverse talent from equity-deserving communities, unclear DEI goals within the company, lack of proper training for HR and managers regarding unconscious bias (Hays, 2021). These factors are not isolated but find themselves integrated with the larger systemic issues and challenges of recruitment.

The challenge for recruiters though is complex as most of the diversity recruitment work is the responsibility of recruiters who are working across the company. This highlights that one of the glaring challenges for recruiters is that they are stretched for time (Emily Heaslip, 2021). The demand for hiring fast makes it difficult for recruiters to spend enough time on the hiring process (James, 2018). This can sometimes lead to unconscious bias creeping into the hiring process. One of the other challenges identified is aligning diversity hiring practices with organizational goals. There can also be push back from the teams and at times leadership of the team lacks sensitivity on racial issues. Efforts to address this gap is through sufficient relevant training. But there is also a lack of institutional support for diversity hiring (Petroni, 2020). Even though some companies mandate diversity hiring, not enough resources are provided to the recruiter to support the same (Myers et.al 10). As with the organisational challenges, recruiters also struggle with finding the pool of diverse candidates for hiring (Walters, 2022). Additionally, recruiters struggle with attracting the right candidate⁶ and candidates do not market their transferrable skills accordingly⁷ (Dayal, 2021; Global Newswire, 2021) As in Figure 4, these challenges of hiring from different equity-deserving groups also varies across the group.

As established before, diversity hiring is not enough and to retain diverse talent, companies must work with re-branding their company's image and revisiting their cultural practices so that they are rooted in equity and inclusion. At times, companies focused on diversity hiring do not see the complete picture and follow superficial practices of having representation of diverse people in their hiring practices without creating safe and inclusive spaces for their employees (Buttner et.al., 2009). As mentioned, prospective employees research companies and their culture through various avenues (LinkedIn or connecting with existing employees) and hence these practices are essential. An interesting thing to note here is about use of the right imagery for rebranding a company for inclusive and diverse practices. Showing diverse people in low-level positions can be detrimental to the image

⁶ 76 per cent of hiring managers reporting that attracting quality candidates is their biggest recruitment challenge (Heaslip, 2021)

⁷ Two thirds of recruiters say that candidates aren't marketing their transferable skills (Global Newswire, 2021)

of the company as an inclusive employer. This is evident when “depicting people of color in high-status positions did not adversely affect the perceptions of whites, but it had a profoundly positive impact on blacks” (Avery, 2003). For the purpose of this research and the review of literature the focus will be specifically on recruitment for DEI.

Successful DEI recruitment practices

Given the focus of this research is on recruitment, it becomes essential to look at the different steps in the recruitment process to highlight where companies are likely to encounter bias and what steps can be taken to tackle the same. **Figure 5** below is the recruitment funnel that lists the steps that most companies follow for recruiting new talent.

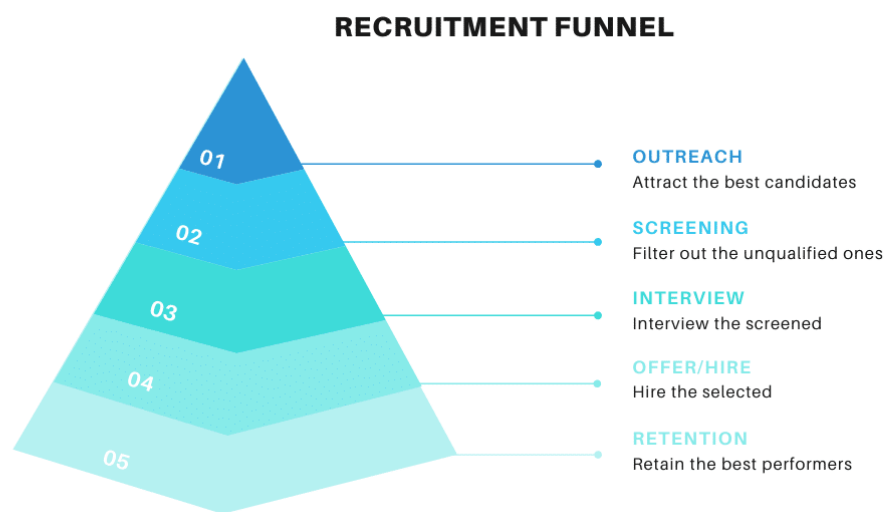


Figure 5: Recruitment Funnel. Source: <https://technical-hiring.com/recruitment-funnel/>

Within the recruitment funnel there are different areas where hiring process can be improved for DEI practices. The different steps and what can be done for DEI within these steps are discussed below.

Sourcing for DEI

As the first step of the hiring process, it is essential that sourcing for jobs happens in a way where people from diverse backgrounds have access to applying for them. This requires that companies tap into talent pools of diverse candidates. Job search platforms sometimes offer advanced connectivity to sub-groups of diverse candidates. This is also possible for job referrals whereby referrals of existing diverse talent within companies increases the likelihood of finding more diverse talent. Hence, using existing networks of diverse employees can help reach a wider pool of talent acquisition. Some of the other tactics include sourcing from universities or academic institutions that look are targeted for the historically marginalised or having virtual job fairs to appeal to those with physical accessibility issues⁸. Some tools for sourcing for diverse talents are: Advancing Women, Door of Clubs, Fairygodboss, InHerSight, Interviewing.io, Jenna AI Inc., Joonko, Jopwell, LinkedIn, PowerToFly, Scout Exchange, Teamable, and WorkplaceDiversity. Our research on Canadian job boards revealed that there are very few job boards that are specific to Canada.

⁸ This information is sourced from multiple software websites that have solutions to sourcing for DEI - <https://canalblindresumetech.com/the-solution/>; [https://toggl.com/hire/pages/diversity-and-inclusion](https://toggl.com/hire/pages/diversity-and-inclusion;); <https://www.pymetrics.ai/talent-acquisition>

Some of these job boards are: Ideal (<https://ideal.com/product/diversity-equity-inclusion-intelligence/>), DiversityCanada (<https://diversitycanada.com/>), IndigenousWorks (<https://indigenousworks.ca/en>), IWC (<https://iwchamilton.ca/careers/>), bipocjobs (<https://www.bipocjobs.ca/diversity-hiring/>) and PrideAtWork (<https://prideatwork.ca/job-board/>). Amongst these, Ideal has been brought over by Ceredian in 2021. These job boards, however, have either not gained enough traction, limited to locations and/or job positions, do not have enough recruiters or a lot of job positions that do not look inclusive in their job descriptions or expectations.

Inclusive job descriptions

It is important for DEI hiring that the job descriptions are created keeping in mind the unconscious bias that can appear in those descriptions. Removing biased language from job advertisements, making clear expectations around salaries, and offering flexible working conditions are some ways that job adverts can be made inclusive. There are multiple softwares that use AI-powered text analysis to find patterns of bias language within job descriptions. Some of these include: Applied, GapJumpers, TalVista, TapRecruit, and Textio (write better job descriptions), Greenhouse (nudges the employers for potential bias). Our research revealed that most of these softwares are not from Canada and are mostly available in the US. Some of the most popular software – pinpointhq, greenhouse.io, and gapjumpers are for the non-Canadian context.

Research has also indicated that using generic statement like “We are an equal opportunity employer” does not appeal to candidates and the messaging around DEI should be more explicit and made clearer. It is also important to move beyond the job description and include information company’s websites and social media indicating a clear inclination towards DEI⁹. Additionally, our research looked at some of the job descriptions that use certain terminologies or have a list of requirements that discourage people from applying for these positions, specifically gendered language and expectations that discourage women from applying. Research reveals that women are most likely to apply for positions where they meet 100% of the criteria, unlike men who apply even if they meet 60% of the criteria (Huppert, 2018). This discourages women from applying for jobs that have a long list of must-haves. Also, the use of corporate jargon becomes a barrier for recruiting younger people as they feel unqualified for the job positions.

Blind resume screening

One of the biggest challenges to DEI recruitment is the unconscious bias that creeps into the hiring process through the resume screening. HR and recruiters are likely to make unconscious choices based on names, age, gender, universities attended or photographs of candidates. The practice of blind resume screening is the cornerstone of hiring for DEI. Practices like changing names of candidates to something random (like fruits, flowers) removes the bias that comes from racialization of names or gathering information about gender from them. Other than names, information like date of birth, address, email addresses, universities attended, and photos are all removed from the resumes as they can be indicative of gender, ethnicity, age etc. There are tools that take an existing resume and convert it into a standard format of skills and industries that is essential to the recruitment practices¹⁰. Some of them are: pindpointhq, recruiteze, toggl, gapjumpers, blendoor. Research indicates that it is important that tools offer flexibility and gives customizable options in the software and train people within companies to prepare them for blind recruitment (JDP, n.d.). Additionally, most of these softwares are

⁹ Information in this section is sourced from multiple software tools that include writing inclusive job descriptions – <https://textio.com> and <https://toggl.com/hire/pages/diversity-and-inclusion>

¹⁰ Information in this section is sourced from software tools that provide blind resume and recruitment options - <https://www.pinpointhq.com/features/blind-recruitment-software>; <https://blendoor.com/>; <https://www.gapjumpers.me/>

not Canadian and hence reflective of the gap that exists within the Canadian context regarding inclusive and equitable hiring practices.

Fair assessment practices

In the recruitment process, at times blind resumes are not enough and for blind recruitment to happen, companies need to have a fair interview process. Hence it is important to also standardise the interview process. Using tech-enabled solutions, candidates can be evaluated against a skill set required for a job and have a structured interview process. Some platforms do skills tests with candidates and offer them a score¹¹ This helps companies hire for the specific skills and reduce implicit bias. There are also options like chatbots, game-based and video-based assessment and interviewing that can help with hiring for DEI. Some tools for fair assessment and testing of candidates are: GapJumpers, greenhouse, HireVue, IBM Watson Recruitment, Talvista. Additionally, it is important that bias is removed post-interview and screening whereby bias in background check and referrals checks are also tackled. Some tools that assist with this are: Checkr, GoodHire¹². However, like most of the tools listed in different categories above, most of these are not from Canada.

Prominent software tools for DEI recruitment

This section will discuss a few prominent software tools that support one or multiple DEI recruitment practices.

Applied (<https://www.beapplied.com/>): This is a software targeting unbiased recruitment by helping companies remove unconscious bias from their hiring practices. They have anonymous, skill-based hiring built into their product. As shown in **Figure 6**, the software offers multiple options, all of which are focused on hiring for diversity by intervening in the different stages of hiring and identifying the unconscious bias.

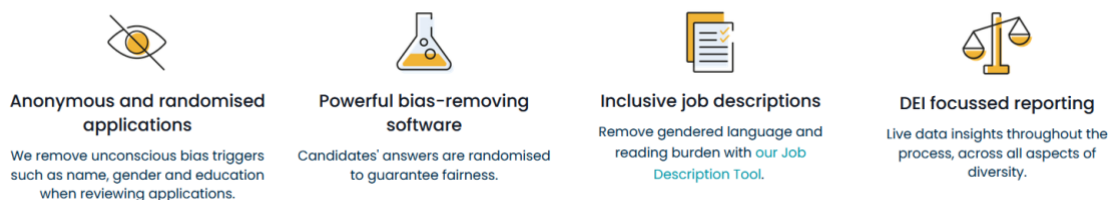


Figure 6: Applied and its different features for diversity hiring

Pinpoint (<https://www.pinpointhq.com/>): This is another software that automates the hiring process, thereby minimising bias from the process. They have built-in features that support diversity hiring – multilingual career sites, exposing job adverts on multiple diversity job boards, encourage employee referrals from under-represented groups and blind hiring. As shown in **Figure 7**, the application has features to anonymise applications for blind recruitment.

¹¹ This is a part of the software tool - <https://toggl.com/hire/pages/diversity-and-inclusion>

¹² Information about this section is sourced from software tools that offer fair assessment practices - <https://www.gapjumpers.me/>; <https://www.greenhouse.io/>; <https://www.goodhire.com/>; <https://checkr.com/>

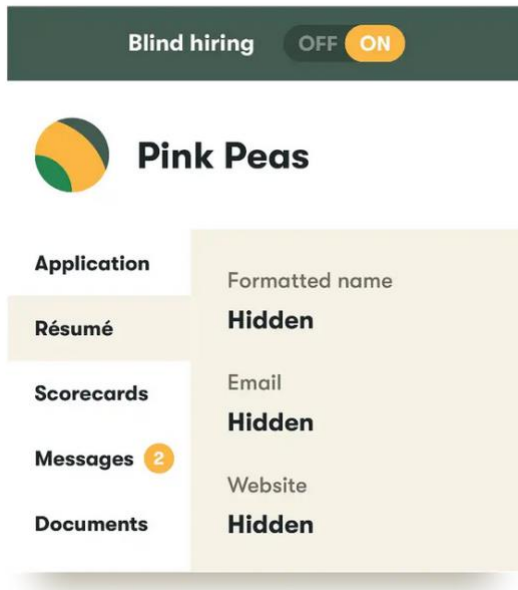


Figure 7: Blind recruitment feature in pinpointhq. Source: <https://www.pinpointhq.com/diversity-recruitment-software/>

Ideal (<https://ideal.com/>): This software application was brought out by Ceredian in 2021. This is evident of the need of working at a large-scale on diversity recruitment along with the relevance of the same. However, this can be proven difficult for medium-scale companies (number of employees 50-499) given that the software can become inaccessible to companies that cannot financially afford the large-scale product. The software uncovers unconscious bias within hiring and retention by quantifying equity initiatives as highlighted in **Figure 8**.

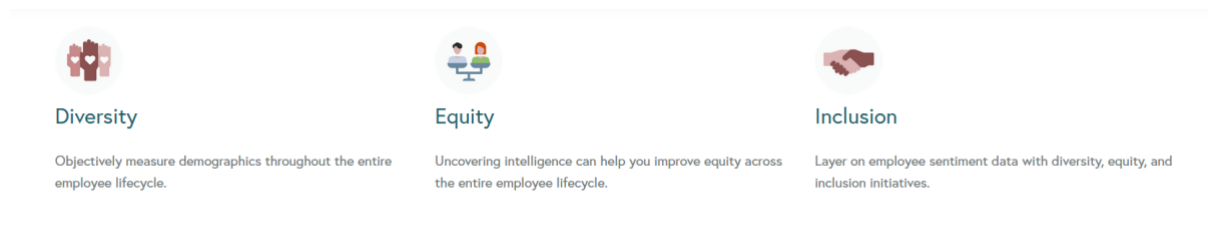


Figure 8: Ways Ideal does DEI recruitment. Source: <https://ideal.com/product/diversity-equity-inclusion-intelligence/>

Entelo (<https://www.entelo.com/>): This application software sources and engages talent and suggests them to companies. They run specific diversity portfolios and campaigns. They do this through diversity filters, eliminating unconscious bias, and having inclusive language alerts amongst a few (see **Figure 9**).

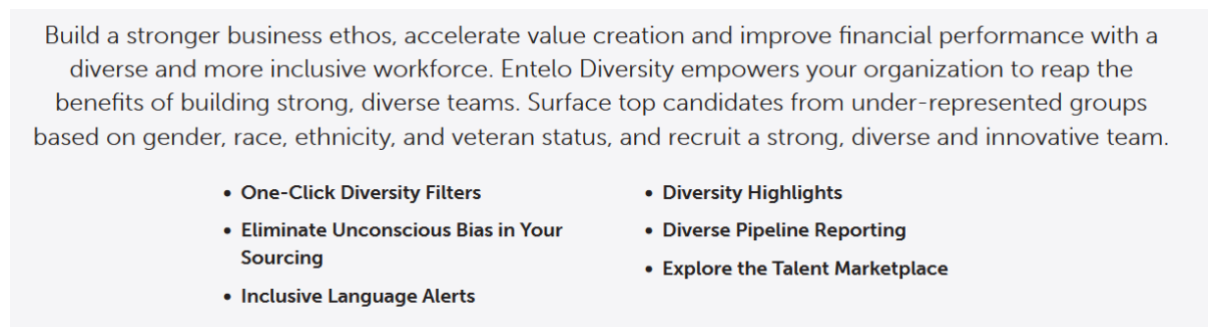


Figure 9: Entelo's features for DEI hiring. Source: <https://www.entelo.com/products/platform/diversity>

It is important to note here that none of the software that were researched had all the features for DEI recruitment but tackled different issues. Also, this is just a brief description of a few applications that targets DEI at different steps of the recruitment cycle.

DEI recruitment in Canada vs US

Research indicates that Canadian companies struggle to hire diverse talent and then end up hiring from their “comfort” demographic (Global Newswire, 2020). With the recent focus on DEI recruitment, the data still looks bleak for Canada¹³. The workforce of a company should be representative of the populations that exist within the geographies in which they operate to manage the client base efficiently and effectively. This is not largely reflective in the Canadian tech-sector context.

In comparison to their neighbors, Canada lies behind US when it comes to having a diverse workforce. Some of the reasons identified through research include:

- Canada’s federal diversity plan (**Employment Equity Act**) is outdated and does not hold employers accountable for discriminatory hiring practices. The Act also applies exclusively to the public sector and federal govt. organizations. In the organizations that diversity is enforced, it works but this is limited to a small section of the industries. In comparison, the **US Affirmative Action** has checks in place to eliminate discrimination among applicants and applies to workplace and education (Collie, 2019).
- What is best for business outweighs the moral values and given that diversity hiring requires more resources (time, money), these are not particularly given importance by the leadership (Collie, 2019).
- Discrimination at higher level because of certain ethnicities associated with certain professions¹⁴ (Collie, 2019)
- Diversity hiring is emphasised for certain ethnicities and areas (e.g., Hiring indigenous workers for banks in areas with large indigenous populations to attract customers) but this is not true for all ethnic backgrounds (Collie, 2019).
- The push in the US for diversity hiring started much before Canada, it has also become a strong focus in the US due to the recent instances of racialized violence and certain movements (#BlackLivesMatter and #MeToo) (Vollman, 2019).
- Also, given the history of US (e.g., Slavery), the inclusion of equity-deserving groups focuses on people of color (esp. Black). However, in Canada the focus is more recent and mostly on Indigenous populations and peoples given the uncovering of the residential school incident (Vollman, 2018).
- Most Canadian companies have not evolved from a compliance (views diversity as a problem and has diverse talent only for legal requirement or to show numbers) state to a more evolved, mature state of hiring and retention of diverse talent¹⁵ (Deloit, 2014).
- Leaders of Canadian companies are putting very low investment into staffing for diversity and inclusion. Majority of the companies (66%) do not have an EDI function or are staffed mostly by volunteers, thus indicating a lack of dedicated staff (Deloit, 2014).

13 40% companies have an EDI policy, 17% plan on implementing it and 9% of these plan on implementing it by the end of the year 2022 (Global Newswire, 2022).

14 Association of Black Canadians with lower-level jobs due to associations of certain groups with low socio-economic background and Asian Canadians who are mostly considered for managerial positions (Collie, 2019)

15 Around 24% of Canadian companies (compared to 11% in the US) have a compliance culture (Deloit, 2014).

- Most of the candidates find information about employers through social media platforms and Canadian companies are yet to leverage these platforms to talk about their work and engage diverse talent. (Wilson, 2021)
- Studies (Cooper, 2021) indicate that white Canadians received 44 per cent more call-backs than their minority counterparts as compared to the US (33%). Some of the reasons identified is that most of the HR teams are predominantly white or most of the hiring happens via referrals that leads to a lack of access to diverse populations.

In comparison to Canada, US has made some changes in diversity hiring, even though these changes are still new and not very effective. The gap withing Canada and US extends beyond the recruitment of candidates. Even though Canada was rated as the one with the most welcoming workplace in the world, people within organizations faced a lot of discrimination/bullying as compared to the US¹⁶ (Taylor, 2019). Another interesting phenomenon that research uncovers is that of unconscious bias that comes with diversity hiring. The bias that people within companies have that people who are from a diverse demographic (women, disability, people of color, indigenous, LGBTQ+) are not qualified enough for a job¹⁷. And diversity hiring means compromising on quality when recruiting for a position (Djuric, 2022). This bias though is not limited to Canada and is a common idea associated with diversity hiring.

Failure of DEI recruitment efforts

One of the most glaring gaps that exists within DEI work in STEM (and others) is that diversity initiatives are not complemented by practices of inclusion and equity within companies. There still exist issues of microaggression, exclusion and unconscious bias that exists within companies and people that makes DEI work appear performative (HR Morning, 2021). “Emphasizing diversity alone does not necessarily address persisting gender, racial, ethnic, disability, and other biases, which reflect widespread cultural stereotypes” (Puritty et al., 2017). Moving beyond diversity work entails identification of structural, cultural, and social biases that exist within hierarchical organizational structures.

Some research suggests ways to move towards a more diverse tech sector¹⁸. Though, this work must be taken on multiple fronts of policy, practices, leadership, and employee mindset shifts. There is also a heavy burden of equity work falling on the shoulders of BIPOC (Black, Indigenous, and people of color) employees within companies¹⁹. It is important that this work is shared by others as possible capacity builders within companies. DEI work also requires substantial time, effort, and investment. It is a long journey of change that involves organizational structures, practices, and mindsets. However, unless we start naming it, calling it out and addressing it, we could possibly not see a drastic shift in equitable and inclusive practices for the equity-deserving groups within STEM.

Conclusion

As discussed, diversity is essential to a company’s success as a diverse workforce supports creative problem solving which in turn can result in profitability and economic growth of the country. Our

¹⁶ 20% of Canadians and 17% of Americans had experienced bullying at work over the past year (2019-2020)

¹⁷ About 60 per cent of those surveyed said employers should only consider how qualified a candidate is, even if it results in less diversity (Djuric, 2022)

¹⁸ Some steps for DEI are: (i) Create an institutional culture of inclusion aimed at equity and social justice, (ii) respect and value diverse backgrounds, and (iii) promote opportunities for students to pursue work that addresses concerns within science and society and engages with our communities (HR Morning, 2021).

¹⁹ We see and feel real fatigue—and, if you’re BIPOC, and particularly if you’re Black, this *Black fatigue*, as coined by Mary-Frances Winters, “causes mental, physical, and spiritual maladies that are passed down from generation to generation.” (HR Morning, 2021).

research highlights the need for Canadian STEM companies to focus on hiring from the equity-deserving groups or people who might belong to more than one of these groups. Diversity hiring includes practices targeting the unconscious and implicit bias within companies and the recruiters. Our research suggests different ways of doing this – blind resume screening, inclusive job descriptions, fair assessment practices and diverse recruitment sourcing.

It has also been highlighted that with the widespread use of assessing companies based on their social media presence, they need to work on building a reputation of being diverse, inclusive, and equitable. This is likely to get them access to more diverse talent. It is important that this conversation takes the form of how, at the intersections of different identities, some people find themselves disadvantaged and marginalised. This impacts their access to recruitment positions within STEM. The conversation around diversity hiring also needs to take into consideration the efforts that companies make in creating a culture of equity and inclusion. This is important not just for retaining employees but also hiring new diverse talent, given that access to digital media has given people the ability to understand the priorities of companies before candidates apply for jobs.

Our research establishes that software solutions to diversity recruitment and the use of AI for hiring can automate the processes thereby reducing the chances of implicit and unconscious bias within the hiring process. There are certain softwares that offer some features that assist in diversity recruitment, some of which are discussed in the review above. However, there exists no one software application that does it all. This establishes the need to look towards continuing to develop software solutions that support DEI hiring within STEM. This becomes even more important in the context of Canada, where diversity hiring efforts are still met with resistance and the lack of legislation to support it. DEI recruitment is in nascent stages with the STEM sector in Canada, and it is important that software solutions continue to be developed and used for diverse, equitable and inclusive recruitment and retention practices within the country.

References

- Anderson, J. (2021). Why return-to-work is putting HR and people leader in charge. Retrieved from <https://hrexecutive.com/why-return-to-work-is-putting-hr-and-people-leaders-in-charge/>
- Avery, D. R. 2003. "Reactions to Diversity in Recruitment Advertising: Are Differences Black and White?" *Journal of Applied Psychology* 88 (4): 672-79
- BC Tech Association. (n.d.). Women in Tech. Retrieved from <https://wearebctech.com/calendars/women-in-tech/>
- Brookfield Institute (2019). Who are Canada's Tech Workers? <https://brookfieldinstitute.ca/who-are-canadas-tech-workers/>
- Brookfield Institute (2020). An Inclusive Innovation Monitor for Canada. https://brookfieldinstitute.ca/wp-content/uploads/Inclusive_Innovation_Monitor-Report.pdf
- Buttner, Lowe, K. B., & Billings-Harris, L. (2009). The challenge of increasing minority-group professional representation in the United States: intriguing findings. *International Journal of Human Resource Management*, 20(4), 771–789. <https://doi.org/10.1080/09585190902770604>
- Cech, E. A., & Waidzun, T. J. (2021). Systemic inequalities for LGBTQ professionals in STEM. *Science Advances*, 7(3) <https://doi.org/10.1126/sciadv.abe0933>
- Collie, M. (2019). Canada has a discrimination problem when it comes to hiring – here's why. *Global News*. <https://globalnews.ca/news/5424465/discriminatory-hiring-practices-canada/>

Cooper, T. (2021, May 25). Four ways to cultivate diverse candidate pools. *The Globe and Mail*. <https://www.theglobeandmail.com/featured-reports/article-four-ways-to-cultivate-diverse-candidate-pools/>

Dana Wilkie (2014, August 17). *Challenges Confront Disabled Who Pursue STEM Careers*. <https://www.shrm.org/resourcesandtools/hr-topics/behavioral-competencies/global-and-cultural-effectiveness/pages/disabled-in-stem-careers.aspx>

Dayal, P. (2021, June 14). COVID-19: Local Businesses face recruitment challenges in the light of Step 2 restart. *Vancouver Sun*. <https://vancouversun.com/news/local-news/covid-19-local-businesses-face-recruitment-challenges-in-light-of-step-2-restart>

Deloit (2014). Diversity and Inclusion in Canada. <https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/human-capital/ca-en-human-capital-diversity-and-Inclusion-in-canada.pdf>

Denio Lourenco (2021, February 1). LGBTQ+ professionals working in STEM face systemic inequalities: report. CTV News. <https://www.ctvnews.ca/sci-tech/lgbtq-professionals-working-in-stem-face-systemic-inequalities-report-1.5291043?cache=lbajlxg>

Djuric, M. (2022, January 10). Most people don't believe diversity hiring should be hiring requirement, national survey shows. *National Observer*. <https://www.nationalobserver.com/2022/01/10/news/diversity-workplace-hiring-requirement-national-survey>

Emily Heaslip (2022, May 18). *5 Reasons why hiring diverse candidates is still hard*. <https://vervoe.com/hiring-diverse-candidates/>

Finkel, D. A. (2020). The impact of COVID-19 on women in the STEM workforce. Australian Academy of Science.

Girls in Tech.(n.d.). Ageism in tech: Can you be “too old”? Retrieved from <https://girlsintech.org/ageism-in-tech/>

Global Newswire (2020, June 8). Fewer Than Half of Canadian Companies Have Diversity, Equity and Inclusion Policy. <https://www.globenewswire.com/en/news-release/2022/06/08/2458817/0/en/Fewer-Than-Half-of-Canadian-Companies-Have-Diversity-Equity-and-Inclusion-Policy.html>

Global Newswire (2021, September 22). 84% of Canadian Companies Expect to Face Hiring Challenges Over the Next Year. <https://www.globenewswire.com/en/news-release/2021/09/22/2301411/0/en/84-of-Canadian-Companies-Expect-to-Face-Hiring-Challenges-Over-the-Next-Year.html>

Hays (2021). Equity, Diversity and Inclusion in Recruitment. <https://www.hays.ca/resources/reports/edi-in-recruitment-2021>

HR Morning. (2021). Diversity up, inclusion down: What HR leaders must do now. Retrieved from <https://www.hrmorning.com/articles/diversity-inclusion/>

Human Resource Director. (2021). DEI: What does the future of diversity look like in Canada? Retrieved from <https://www.hcamag.com/ca/specialization/diversity-inclusion/dei-what-does-the-future-of-diversity-look-like-in-canada/310007>

Hupper (2018). 5 Must Do's for writing inclusive job descriptions. Retrieved from <https://www.linkedin.com/business/talent/blog/talent-acquisition/must-dos-for-writing-inclusive-job-descriptions>

James, L. (2018). The Challenges with Diversity & Inclusion. <https://www.linkedin.com/pulse/challenges-diversity-inclusion-lia-james>

JDP (n.d.). What's a Blind Resume Review. <https://www.jdp.com/blog/whats-a-blind-resume-review/>

McKinsey and Company. (2020). Most diverse companies now more likely than ever to outperform financially. Retrieved from <https://www.mckinsey.com/featured-insights/coronavirus-leading-through-the-crisis/charting-the-path-to-the-next-normal/most-diverse-companies-now-more-likely-than-ever-to-outperform-financially>

Myers, Valerie L., and Janice L. Dreachslin. "Recruitment and retention of a diverse workforce: challenges and opportunities." *Journal of Healthcare Management*, vol. 52, no. 5, Sept.-Oct. 2007, pp. 290+. *Gale OneFile: Business*, <https://link.gale.com/apps/doc/A169448474/ITBC?u=uvictoria&sid=bookmark-ITBC&xid=dbf877e6>

Petrone, P. (2020). 7 of the Biggest Problems Recruiters Face (And How to Overcome Them). <https://www.linkedin.com/business/talent/blog/talent-acquisition/biggest-problems-recruiters-face-and-how-to-overcome-them>

Puritty, C., Strickland, L. R., Alia, E., Blonder, B., Klein, E., Kohl, M. T., Mcgee, E., Quintana, M., Ridley, R. E., Tellman, B., & Gerber, L. R. (2017). Without inclusion, diversity initiatives may not be enough. *Science (American Association for the Advancement of Science)*, 357(6356), 1101-1102. <https://doi.org/10.1126/science.aai9054>

Taylor, C. (2019, September 18). Canada provides the most welcoming workplaces in the world, research claims. *CNBC*. <https://www.cnbc.com/2019/09/18/canada-provides-the-worlds-most-welcoming-workplaces-kantar-claims.html>

The Conference Board of Canada (2020). Incorporating Indigenous Cultures and Realities in STEM. Retrieved from https://fsc-ccf.ca/wp-content/uploads/2020/07/24559_10697_incorporating-indigenous-culture-and-realities_primer.pdf

University Of Toronto (n.d.). <https://research.utoronto.ca/equity-diversity-inclusion/equity-diversity-inclusion>

Venture Beat. (2022). Report: 85% of consumers rethink purchases from companies that lack focus on climate and diversity. Retrieved from <https://venturebeat.com/2021/10/29/report-85-of-consumers-rethink-purchases-from-companies-that-lack-focus-on-climate-and-diversity/>

Vollman, A. (2018). Canada Versus the U.S. *Insight Into Diversity*. <https://www.insightintodiversity.com/canada-versus-the-u-s/>

Walters, J. (2022). Job seekers are placing increasing importance on workplace diversity. <https://www.hcamag.com/ca/specialization/corporate-wellness/recruiting-for-diversity-how-to-find-top-talent/402910>

Wilson, J. (2021, August 18). Employers not getting it right in recruiting diverse talent. *HRReporter*. <https://www.hrreporter.com/focus-areas/diversity/employers-not-getting-it-right-in-recruiting-diverse-talent/359015>

Workplaces that work for women. (2021). People of Colour in Canada (Quick Take). Retrieved from <https://www.catalyst.org/research/people-of-colour-in-canada/>

Statistics Canada (2016). 2016 Census. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Ap-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=111841&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=122&VID=0&VNAMEE=&VNAMEF=>