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Strategic implementation of ED&I: unveiling the multifaceted impact on innovation, governance, and ethical conduct in engineering organizations

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In contemporary organizational landscapes, Equity, Diversity, and Inclusion (ED&I) stand as pivotal pillars for fostering innovation, resilience, and sustainable growth. This article explores the critical importance of ED&I within engineering organizations, focusing on the strategies for understanding ED&I dynamics, implementing inclusive environments, and extending ED&I principles through the industrial value chain. It investigates the complexities of individual identities, the significance of intersectionality, and the strategic advantage of diversity for organizational performance. By exploring comprehensive governance of ED&I initiatives, the role of leadership in fostering diversity, and the impact of ED&I on organizational sustainability and innovation, this study provides a holistic view of the challenges and opportunities in creating inclusive workplaces.

KEYWORDS

equity, diversity, inclusion, organizational culture, inclusive workplace, ED&I initiatives, innovation

1 Introduction

In the evolving landscape of global business, the imperative to foster an environment rich in Equity, Diversity, and Inclusion (ED&I) has become a central principle for organizations seeking to not only achieve success but also to lead with purpose and integrity. In an environment of increasing societal awareness and calls for social justice, organizations are realizing that ED&I is not just a box to tick in corporate social responsibility but a crucial driver of innovation, employee satisfaction, and sustainable growth.

Organizations increasingly recognize the intrinsic value of fostering diverse teams, realizing that diversity extends beyond minority representation. Diversity celebrates the multitude of perspectives, backgrounds, and talents that individuals bring to the table and enriches the organizational structure with a broad range of insights and experiences. The evolution of current diversity efforts has led to the emergence of the concept of inclusion, a term that became intrinsically linked with diversity in the 1990s (Sabharwal, 2015). This pivotal pairing underscores the necessity of examining inclusion alongside diversity to address crucial questions about leveraging the potential of a diverse workforce. Inclusion

goes a step further than diversity alone, ensuring that this rich diversity is supported and valued, making every member feel an integral part of the organizational structure. Equity addresses fairness and justice, ensuring everyone has access to the same opportunities by tailoring resources and support to meet individual needs and circumstances. This approach marks a significant evolution from the concept of equality, where uniform resources and opportunities are extended to all, towards equity, which recognizes and addresses the unique barriers and challenges that individuals may face (Wolbring and Nguyen, 2023).

Building on this foundation of ED&I, the pursuit of creating diverse and inclusive teams becomes a strategic imperative for fostering innovation. This approach moves beyond mere representation, aiming to unlock new opportunities for growth and innovation by bringing together individuals with diverse talents and perspectives. The correlation between ED&I and innovation is well supported by evidence highlighting the substantial benefits these principles offer.

Notably, diverse teams, despite potential differences of opinion, are more innovative and demonstrate enhanced problem-solving capabilities. This innovative advantage is supported by tangible outcomes such as increased patents and patent citations, underscoring the direct correlation between diversity and creativity (Torchia et al., 2011; Vafaei et al., 2021). This evidence is also supported by the observation that firms with ethnically diverse management are notably more innovative, and more likely to introduce novel products and processes, this further underscores the innovation benefits of ED&I (Nathan and Lee, 2013).

The governance landscape benefits significantly from gender-diverse boards, which are associated with improved corporate governance metrics. This includes more effective board monitoring functions, such as attendance, quality of discussions, and monitoring effectiveness, underscoring the role of gender diversity in fostering transparent and accountable corporate practices (Adams and Ferreira, 2009). Moreover, despite the challenges in direct measurement and causal linkage identification, existing studies and frameworks suggest beneficial impacts of more inclusive firms on business performance. Analysis by Great Place to Work (Gre, 2020) of millions of employee survey responses further supports the positive correlation between feelings of inclusion and business performance, highlighting trust and inclusion as critical drivers of innovation and profitability.

This paradigm shift is particularly crucial within the engineering and manufacturing sectors, which are often characterized by notably less diverse populations and traditionally homogeneous cultures. Historically, these fields have been slow to embrace the full spectrum of ED&I, often leading to environments that lack representation from women, minorities, and other underrepresented groups (Heß, 2020). Recent statistics underscore this point: as of the fourth quarter of 2023, there were approximately 1.98 million men employed in the manufacturing sector in the United Kingdom, compared with 710,000 women (Statista, 2024a). According to the Office for National Statistics (ONS), there were an estimated 36.9 million workforce jobs in the United Kingdom as of the fourth quarter of 2023, with 16.06 million women aged 16 and over in employment during the same period (Statista, 2024b). This equates to a gender ratio in the overall workforce of approximately 1.3:1 (men to women). The gender ratio in the manufacturing sector, however, is significantly skewed at approximately 2.8:1 (men to women), highlighting a substantial gender imbalance compared to the broader workforce. The consequences of this deficiency are far-reaching, affecting not only the wellbeing and advancement of individuals within these organizations, but also hindering the innovation and creative problem-solving necessary for engineering and manufacturing excellence (Travis et al., 2019). Addressing this disparity requires not only recognition of unique barriers that exist within these sectors, but also a targeted and strategic approach to eliminating them, ensuring that engineering and manufacturing organizations can leverage the full potential of a diverse workforce (Davila Dos Santos et al., 2022).

Despite the increase awareness and widely reported initiatives aimed at fostering ED&I, challenges still persist in fully integrating and realizing the benefits of a diverse workforce. Discrimination, unconscious bias, and systemic inequalities continue to undermine efforts, necessitating a more profound commitment to change (Dover et al., 2020). The journey towards equitable, diverse, and inclusive environments is ongoing and requires not only an awareness but also continuous interest and development, as well as the implementation of practical applications that move beyond theoretical commitments. It is not enough for organizations to simply declare their commitment to ED&I; they must actively pursue and implement strategies that bring about real change. This article endeavors to illuminate the path forward by providing insights into the practical application of ED&I principles. It explores the foundational aspects of ED&I dynamics and challenges within the organizational context, emphasizing the importance of legal frameworks, intersectionality, and the strategic benefits of ED&I. Additionally, it further examines the mechanisms for implementing inclusive environments, highlighting the critical role of leadership and governance of ED&I initiatives, and the significance of embedding ED&I principles into the organizational DNA. The discussion extends to the strategic extension of ED&I principles in the value chain, showcasing the broader implications of inclusivity beyond organizational boundaries. By integrating insights from recent literature, this study aims to shed light on effective strategies for achieving ED&I excellence, rethinking organizational paradigms for inclusive growth, and ensuring long-term success and commitment to diversity and inclusion initiatives.

2 Understanding ED&I dynamics and challenges

The historical trajectory of organizational responsibility towards employees has evolved significantly from the industrial revolution's focus on productivity to the modern emphasis on ED&I. Initially, labor movements and ethical considerations in the late 19th and early 20th centuries gave rise to 'welfare work', aimed at improving working conditions (Marks, 2014). By the mid-20th century, this evolved into human resource management, which considered employees as vital assets and emphasized the importance of their treatment and engagement (Kaufman, 2015). The rise of civil rights movements further shifted the paradigm, integrating ED&I into the core responsibilities of organizations by the late 20th century. This

shift reflects a broader understanding that diversity and inclusion are not just ethical imperatives but strategic advantages, particularly pronounced in engineering and manufacturing sectors (Agarwala, 2018; Alqarni et al., 2022).

The foundational step in fostering ED&I in the workplace, particularly in engineering and manufacturing, is rooted in a comprehensive understanding of diversity's multifaceted nature and the inherent challenges it introduces. This includes addressing stereotypes, breaking down barriers to entry for underrepresented groups, and tackling the significant gender gap in engineering disciplines. Fundamental principles of ED&I lay the groundwork for creating environments where every individual feels safe, valued, and empowered to reach their full potential, regardless of their background or identity. Legal frameworks like the UK's Equality Act 2010 offer protection across nine characteristics, setting a precedent for protecting diversity in the workplace (Government Equalities Office and Equality and Human Rights Commission, 2020).

The concept of intersectionality, introduced by Kimberlé Crenshaw in the late 1980s, is pivotal in understanding the compounded experiences of individuals who identify with multiple marginalized groups (Crenshaw, 2013). This intersectionality highlights the intricate ways in which different social identities (e.g., race, gender, socioeconomic status) interact and how systemic inequities and discrimination intersect to affect individuals uniquely. These combined impact of factors also challenges organizations to adopt nuanced approaches to ED&I (Cho et al., 2013). Understanding and addressing these intersectional challenges is crucial in building truly inclusive environments that cater to everyone's needs, acknowledging that the sum of our parts and the complexity of our identities significantly impact our workplace experiences and contributions (Purdie-Vaughns and Eibach, 2008).

Recent studies reinforce the imperative of embracing ED&I not only as a moral and ethical obligation but as a strategic advantage. Diversity within teams is shown to foster greater creativity, innovation, and a broader array of problem-solving approaches, ultimately contributing to enhanced organizational performance (Hunt et al., 2018). However, the journey towards a truly diverse and inclusive workplace is fraught with challenges. The benefits of diversity are only attainable in environments that actively promote inclusion and equity.

Within this context, a key challenge is the difficulty of effectively measuring the impact of ED&I initiatives. As noted in (Milanesi, 2023), quantifying the direct business outcomes of ED&I efforts is complex. Traditional metrics and key performance indicators often fall short of capturing the nuanced benefits these practices offer, such as fostering an innovative culture, improving decision-making processes, and enhancing employee satisfaction and loyalty. This measurement challenge complicates organizations' ability to assess the true effectiveness of their ED&I strategies and make the case for continued or increased investments in these critical areas.

Implementing effective ED&I initiatives requires the diligent monitoring of diversity metrics, including workforce demographics, representation across different groups, employee satisfaction, and retention rates (Kochan et al., 2003). Despite a growing acknowledgment of ED&I's significance, resistance from various stakeholders poses a substantial challenge to these efforts. Overcoming this resistance necessitates transparent communication, active engagement with stakeholders, and a strong leadership that is deeply committed to fostering a culture of inclusion (Shore et al., 2011; Dobbin and Kalev, 2016).

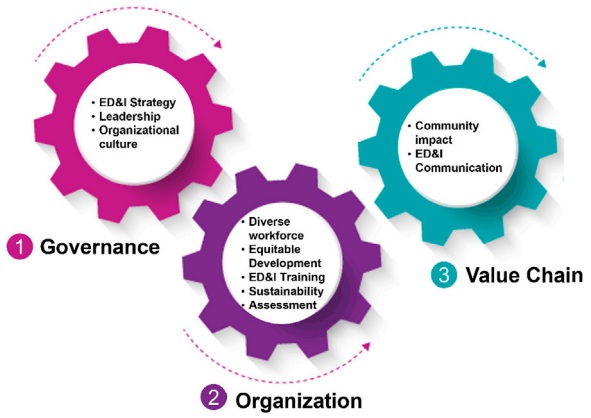


FIGURE 1
The Systematic ED&I implementation in Manufacturing Organizations, illustrating the interrelated components of Governance, Organizational Activities, and the Value Chain.

Addressing structural barriers, confronting implicit biases, and steering cultural transformation are critical for the successful implementation and sustainability of ED&I initiatives. Recent research highlights the importance of these strategies in creating workplaces where all members feel valued and empowered, underscoring the role of leadership in championing diversity and inclusivity (Oreopoulos and Dechief, 2012; Barak, 2022).

By embracing recent insights and adopting strategic approaches to ED&I, organizations can navigate the complexities of diversity and inclusion, ensuring every individual's fullest contribution and fostering an environment where innovation and excellence flourish.

3 Implementing strategies for inclusive environments

Comprehensive implementation of ED&I within an organization requires a systematic approach that integrates ED&I principles across various operational and strategic layers. It begins with establishing a strong governance framework to set the tone and expectations for ED&I efforts. However, governance alone is insufficient to embed ED&I deeply into the organization. The second, critical level involves facilitating ED&I across all organizational activities, including recruitment, training, development, and promotion, and ensuring that ED&I principles are reflected in every decision and process. Additionally, the organization's value chain represents the third vital area, extends ED&I principles beyond the internal operations to include suppliers, partners, and customers, thereby increasing the impact of these initiatives. Figure 1 illustrates the three key areas, governance, organizational activities, and the value chain, along with the strategies for effectively integrating ED&I. The following subsections will discuss these areas in detail, emphasizing the significance of a holistic approach in fostering ED&I.

3.1 Governance of ED&I initiatives

Establishing strategies for fostering inclusive environments in the manufacturing sector necessitates a comprehensive approach to governance of ED&I initiatives. This involves not only adhering to industry-specific legal frameworks and safety regulations but also extending beyond compliance to embrace the principles of intersectionality fully. Institutionalizing ED&I principles within the organizational culture is critical, necessitating the development of robust policies that prevent harassment and advocate for inclusivity across all levels of production and administration (Bendl et al., 2015; Barak, 2022).

A foundational step in this process is the formulation of an ED&I Policy that commits to zero tolerance towards harassment, fostering a safe and respectful workplace. By integrating ethical principles into these policies, organizations ensure their ED&I strategies are comprehensive, addressing the specific needs of individuals across diverse identities (Shore et al., 2011; Oswick and Noon, 2014).

The assignment of a dedicated ED&I leader and the establishment of a governance framework are critical for reinforcing the organization's commitment to diversity and inclusion. Such structures facilitate the strategic oversight of ED&I initiatives, ensuring alignment with organizational goals and fostering a culture of continuous improvement and accountability (Kalev et al., 2006). Furthermore, Employee Resource Groups (ERGs) emerge as powerful platforms for promoting inclusion, offering spaces for individuals with shared characteristics to support one another and contribute to building a more inclusive workplace environment (Catalino et al., 2022).

Setting measurable targets within an ED&I strategy is crucial for tracking progress and facilitating organizational growth towards diverse representation at all organizational levels. These targets help guide ED&I efforts and allow for the evaluation of strategies and practices, ensuring they effectively address inequality and foster an equitable workplace (Dobbin and Kalev, 2016).

Leaders play a pivotal role in the ED&I transformation process, exemplifying commitment through action rather than rhetoric alone. It is essential for leaders to actively combat hidden discrimination in recruitment, skill development, and resource allocation, thereby promoting fairness and equity within the workforce. Leadership must transcend advocacy, embodying the principles of ED&I through visible actions and accountability. By setting a strategic vision for ED&I excellence and empowering middle management to implement these initiatives, leaders can ensure the effective permeation of ED&I values throughout the organization, thus paving the way for substantial and meaningful change (Kalev et al., 2006; Hunt et al., 2018).

3.2 Facilitating ED&I in the organization

Integrating ED&I into organizational practices requires a comprehensive, research-backed approach that extends across various facets of the workplace. The interconnections of creating inclusive workplace cultures, ensuring fair recruitment practices in technical roles and promoting employee development, as well as strategic ED&I training and alignment with sustainability goals underpin a transformative organizational morals. As organizations grapple with the complexities of creating environments that respect and celebrate diversity, the literature suggests that success hinges on a multifaceted strategy encompassing culture, recruitment, development, and continuous learning. Research by Vohra et al. (2015), Radu (2023) highlights the significance of cultivating an inclusive workplace culture, where diversity is not only acknowledged but leveraged as a vital asset for innovation and organizational success. The work by Tang (2019) further elaborates on this, emphasizing the creation of an environment where diversity is not just accepted but is seen as integral to organizational identity, driving both cohesion and creativity.

The recruitment and hiring process is a critical entry point for building a diverse workforce. By incorporating unbiased recruitment strategies, such as structured interviews and diverse hiring panels, can significantly mitigate biases, ensuring a more equitable selection process (Raghavan et al., 2020; Bergelson et al., 2022). Furthermore, proactive outreach efforts to underrepresented communities can broaden the talent pool, and can significantly enhance the diversity and dynamism of organization workforce (Popo-Olaniyan et al., 2022). This approach not only aligns with the principles of fairness and equity but also enriches the organizational talent pool with a wide array of perspectives and skills.

Employee development and advancement are central to retaining and nurturing talent within a manufacturing organization. The importance of transparent and fair career progression pathways, mentorship opportunities, and equitable performance evaluation systems cannot be overstated, ensuring that all employees, regardless of their background, have access to growth opportunities (Mullin et al., 2021).

Comprehensive ED&I training programs are instrumental in facilitating cultural shifts within organizations. Bezrukova et al. (2016) highlight the impact of training focused on unconscious bias, cultural competency, and inclusive leadership. These programs can significantly influence employees' attitudes and behaviors, promoting a more inclusive and respectful workplace environment.

Linking ED&I efforts with sustainability initiatives presents an opportunity for organizations to address broader societal challenges while enhancing their resilience and innovation. The synergy between social responsibility and environmental stewardship underscores the interconnections of these efforts, with the potential to drive significant positive change both within and beyond the organizational boundaries.

A data-driven approach to ED&I, leveraging analytics to inform strategies and measure impact, is critical for ensuring the effectiveness of these initiatives. Through the collection and analysis of both quantitative and qualitative data, organizations can gain a deeper understanding of their ED&I landscape, enabling targeted interventions and the continuous refinement of strategies (Wergin, 2018; Barak, 2022). This approach ensures that ED&I initiatives are grounded in evidence, facilitating a cycle of ongoing evaluation, learning, and improvement.

3.3 Facilitating ED&I in value chain

Extending ED&I principles into the value chain is imperative for manufacturing organizations seeking to cultivate a comprehensive

ED&I strategy that goes beyond internal operations. This third vital area involves incorporating ED&I principles in interactions with suppliers, partners, and customers, reflecting the interconnected nature of modern manufacturing networks. By doing so, manufacturing organizations can increase the impact of these initiatives, fostering inclusivity in every link of the supply chain.

In the manufacturing sector, the value chain not only includes the flow of materials but also the collaboration of diverse teams in innovation, design, and execution of production. Here, ED&I principles can lead to more ethical sourcing, inclusive product development, and equitable business practices that reflect an organization's commitment to social responsibility (Helmsing and Vellema, 2011). Collaborations with diverse suppliers and partners can introduce fresh perspectives and drive innovation, leading to more robust and inclusive manufacturing processes.

Communication of ED&I efforts transparently and effectively is crucial in sustaining long-term success and commitment across the value chain. Transparent communication ensures that all stakeholders, from employees to suppliers to clients, are aware of the organization's ED&I commitments, fostering a shared sense of purpose and encouraging collaborative efforts towards inclusivity (Wolfgruber et al., 2021). This dialogue is essential for highlighting the organizational commitment to ED&I, sharing successes, addressing challenges, and demonstrating the impact of these initiatives.

Furthermore, integrating ED&I with organizational values and strategies not only enhances the internal culture but also strengthens the brand and reputation externally, attracting diverse talent and clients who share similar values (Dobbin and Kalev, 2016). The inclusion of diverse perspectives throughout the value chain also reflects a commitment to broader social change and positions the organization as a leader in promoting inclusion and equity.

4 Conclusion

In light of the refined approach to implementing ED&I, it becomes evident that ED&I initiatives are integral to the strategic business imperatives. The evidence gathered underscores the necessity for manufacturing organizations to adopt a comprehensive approach to ED&I. These principles must be embedded not only within their policies but also as core elements of their organizational culture and strategic vision, tailored to the unique operational environment. As manufacturing organizations continue to navigate the complexities of a modern and often technical workplace, their commitment to ED&I principles will be pivotal. This commitment will ensure the full potential of a technically skilled workforce is unlocked, driving sustainable growth, fostering innovation in product design and production processes, and positioning these organizations as leaders in a globally diverse and interconnected industrial landscape. The forward momentum must be maintained through a continual, dynamic process of embedding ED&I into every level of operation from governance to the entire value chain.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

Author contributions

YA-Y: Formal Analysis, Validation, Visualization, Writing–original draft. JP: Formal Analysis, Validation, Writing–review and editing. KS: Conceptualization, Funding acquisition, Project administration, Resources, Supervision, Writing–review and editing.

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References

Adams, R. B., and Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *J. financial Econ.* 94, 291–309. doi:10.1016/j.jfineco.2008.10.007

Agarwala, R. (2018). Incorporating informal workers into twenty-first century social contracts. UNRISD Working Paper No. 2018-13.

Alqarni, N. M., Mclaughlin, P., Al-ashaab, A., and Aziz, N. A. (2022). Factors influencing organizational culture to facilitate radical innovation in mature manufacturing organizations. *J. Innovation Bus. Best Pract.* 2022, 752939. doi:10.5171/2022.752939

Barak, M. E. M. (2022). *Managing diversity: toward a globally inclusive workplace*. Thousand Oaks, CA: Sage Publications.

Bendl, R., Bleijenbergh, I., Henttonen, E., and Mills, A. J. (2015). *The Oxford handbook of diversity in organizations*. Oxford University Press.

Bergelson, I., Tracy, C., and Takacs, E. (2022). Best practices for reducing bias in the interview process. *Curr. Urol. Rep.* 23, 319–325. doi:10.1007/s11934-022-01116-7

Bezrukova, K., Spell, C. S., Perry, J. L., and Jehn, K. A. (2016). A meta-analytical integration of over 40 years of research on diversity training evaluation. *Psychol. Bull.* 142, 1227–1274. doi:10.1037/bul0000067

Catalino, N., Gardner, N., Goldstein, D., and Wong, J. (2022). *Effective employee resource groups are key to inclusion at work. here's how to get them right*.

Cho, S., Crenshaw, K. W., and McCall, L. (2013). Toward a field of intersectionality studies: theory, applications, and praxis. *Signs J. women Cult. Soc.* 38, 785–810. doi:10.1086/669608

Crenshaw, K. (2013). "Demarginalizing the intersection of race and sex: a black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics," in *Feminist legal theories* (New York, NY: Routledge), 23–51.

Davila Dos Santos, E., Albahari, A., Díaz, S., and De Freitas, E. C. (2022). 'science and technology as feminine': raising awareness about and reducing the gender gap in stem careers. *J. Gend. Stud.* 31, 505–518. doi:10.1080/09589236.2021.1922272

Dobbin, F., and Kalev, A. (2016). Why diversity programs fail. *Harv. Bus. Rev.* 94, 14.

Dover, T. L., Kaiser, C. R., and Major, B. (2020). Mixed signals: the unintended effects of diversity initiatives. *Soc. Issues Policy Rev.* 14, 152–181. doi:10.1111/sipr.12059

Gre, (2020). *Hidden pieces of the D&I puzzle*. Great Place to Work. Available at: https://www.greatplacetowork.com/resources/reports/the-d-i-puzzle.

Government Equalities Office and Equality and Human Rights Commission (2020). *Equality Act 2010: guidance*. Available at: https://www.gov.uk/guidance/equality-act-2010-guidance#full-publication-update-history.

Helmsing, A., and Vellema, S. (2011). *Value chains, social inclusion and economic development*. London and New York: Routledge.

Heß, P. (2020). Sd 5 and the gender gap in standardization: empirical evidence from Germany. *Sustainability* 12, 8699. doi:10.3390/su12208699

Hunt, V., Prince, S., Dixon-Fyle, S., and Yee, L. (2018). *Delivering through diversity*.

Kalev, A., Dobbin, F., and Kelly, E. (2006). Best practices or best guesses? assessing the efficacy of corporate affirmative action and diversity policies. *Am. Sociol. Rev.* 71, 589–617. doi:10.1177/000312240607100404

Kaufman, B. E. (2015). Evolution of strategic hrm as seen through two founding books: a 30th anniversary perspective on development of the field. *Hum. Resour. Manag.* 54, 389–407. doi:10.1002/hrm.21720

Kochan, T., Bezrukova, K., Ely, R., Jackson, S., Joshi, A., Jehn, K., et al. (2003). The effects of diversity on business performance: report of the diversity research network. *Hum. Resour. Manag.* 42, 3–21. doi:10.1002/hrm.10061

Marks, G. W. (2014). *Unions in politics: britain, Germany, and the United States in the nineteenth and early twentieth centuries, 983*. Princeton University Press.

Milanesi, C. (2023). The business impact of diversity, equity and inclusion. Tech. Rep. Forbes Consumer Tech.

Mullin, A. E., Coe, I. R., Gooden, E. A., Tunde-Byass, M., and Wiley, R. E. (2021). Inclusion, diversity, equity, and accessibility: from organizational responsibility to leadership competency. In *Healthcare management forum, healthcare management forum* (SAGE Publications Sage CA: Los Angeles, CA), vol. 34, 311–315. doi:10.1177/08404704211038232

Nathan, M., and Lee, N. (2013). Cultural diversity, innovation, and entrepreneurship: firm-level evidence from l ondon. *Econ. Geogr.* 89, 367–394. doi:10.1111/ecge.12016

Oreopoulos, P., and Dechief, D. (2012). *Why do some employers prefer to interview matthew, but not samir? new evidence from toronto, montreal, and vancouver*.

Oswick, C., and Noon, M. (2014). Discourses of diversity, equality and inclusion: trenchant formulations or transient fashions? *Br. J. Manag.* 25, 23–39. doi:10.1111/j.1467-8551.2012.00830.x

Popo-Olaniyan, O., Elufioye, O. A., Okonkwo, F. C., Udeh, C. A., Eleogu, T. F., and Olatoye, F. O. (2022). Inclusive workforce development in us stem fields: a comprehensive review. *Int. J. Manag. Entrepreneursh. Res.* 4, 659–674. doi:10.51594/ijmer.v4i12.677

Purdie-Vaughns, V., and Eibach, R. P. (2008). Intersectional invisibility: the distinctive advantages and disadvantages of multiple subordinate-group identities. *Sex. roles* 59, 377–391. doi:10.1007/s11199-008-9424-4

Radu, C. (2023). "Fostering a positive workplace culture: impacts on performance and agility," in *Human resource management - an update*. Editor A. A. V. Boas (London, United Kingdom: IntechOpen Limited). chap. 3. doi:10.5772/intechopen.1003259

Raghavan, M., Barocas, S., Kleinberg, J., and Levy, K. (2020). "Mitigating bias in algorithmic hiring: evaluating claims and practices," in *Proceedings of the 2020 conference on fairness, accountability, and transparency*, 469–481.

Sabharwal, M. (2015). From glass ceiling to glass cliff: women in senior executive service. *J. public Adm. Res. theory* 25, 399–426. doi:10.1093/jopart/mut030

Shore, L. M., Randel, A. E., Chung, B. G., Dean, M. A., Holcombe Ehrhart, K., and Singh, G. (2011). Inclusion and diversity in work groups: a review and model for future research. *J. Manag.* 37, 1262–1289. doi:10.1177/0149206310385943

Statista (2024a). *Number of people employed in the manufacturing industry from 1st quarter 1997 to 4th quarter 2023, by gender*. United Kingdom: Office for National Statistics. Available at: https://www.statista.com/statistics/1386997/uk-manufacturing-workforce-by-gender/ (Accessed April 04, 2024).

Statista (2024b). *Number of workforce jobs in the United Kingdom from 1st quarter 1959 to 4th quarter 2023*. United Kingdom: Office for National Statistics. Available at: https://www.statista.com/statistics/297073/workforce-jobs-uk/ (Accessed June 03, 2024).

Tang, M. (2019). Fostering creativity in intercultural and interdisciplinary teams: the victory model. *Front. Psychol.* 10, 2020. doi:10.3389/fpsyg.2019.02020

Torchia, M., Calabrò, A., and Huse, M. (2011). Women directors on corporate boards: from tokenism to critical mass. *J. Bus. Ethics* 102, 299–317. doi:10.1007/s10551-011-0815-z

Travis, D. J., Nugent, J. S., and Lengnick-Hall, R. (2019). "Cultivating healthy, inclusive workplaces: why it matters and how organizations make progress," in *Creating psychologically healthy workplaces* (Cheltenham, United Kingdom: Edward Elgar Publishing Ltd), 386–410.

Vafaei, A., Henry, D., Ahmed, K., and Alipour, M. (2021). Board diversity: female director participation and corporate innovation. *Int. J. Account. Inf. Manag.* 29, 247–279. doi:10.1108/ijaim-06-2020-0080

Vohra, N., Chari, V., Mathur, P., Sudarshan, P., Verma, N., Mathur, N., et al. (2015). Inclusive workplaces: lessons from theory and practice. *Vikalpa* 40, 324–362. doi:10.1177/0256090915601515

Wergin, J. F. (2018). "Finding the right design for edi research," in *Handbook of research methods in diversity management, equality and inclusion at work* (Cheltenham, United Kingdom: Edward Elgar Publishing), 36–59.

Wolbring, G., and Nguyen, A. (2023). Equity/equality, diversity and inclusion, and other edi phrases and edi policy frameworks: a scoping review. *Trends High. Educ.* 2, 168–237. doi:10.3390/higheredu2010011

Wolfgruber, D., Einwiller, S., and Brockhaus, J. (2021). *Let's talk about diversity and inclusion: fostering an inclusive work environment through communication*. Leipzig, Germany: Academic Society for Management & Communication – An initiative of the Günter Thiele Foundation.



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