Summary of Counterarguments Against Advancing Anti-Racism, Diversity, Equity, and Inclusion in STEMM Organizations

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Executive Summary:

Throughout the United States (U.S.) and many countries around the globe, organizations are seeking guidance regarding the best practices for approaching anti-racism, diversity, equity, and inclusion (ARDEI) initiatives to promote more equitable workplaces. They are aware that some constituents will enthusiastically support these efforts while others will avidly resist them. The National Academies of Sciences, Engineering, and Medicine seek to conduct a balanced assessment of ARDEI in STEMM organizations, considering both supportive arguments and counterarguments. As part of their strategy, they have commissioned this summary of counterarguments, which highlights the following themes of opposition to ARDEI in STEMM organizations:

1. There is insubstantial evidence of systemic racism within STEMM organizations, so systemic solutions (e.g., widespread policy and practice changes) are unwarranted. Individual case-by-case solutions should be preferable.
2. STEMM organizations have engaged in diversity and inclusion (D&I) initiatives for decades, and evidence suggests they are effectively closing the gaps. No further action is warranted.
3. Race-conscious organizational initiatives can prompt identity-related threats for both white employees and underrepresented minority employees.
4. Race-conscious organizational initiatives deprioritize merit and objectivity and, consequently, undermine the integrity of the STEMM profession.

In the summer of 2020, viral video footage of Minneapolis police officer Derek Chauvin gruesomely murdering George Floyd (a Black man) struck the social consciousness of billions of people around the world. In the initial aftermath, organizational leaders across a wide range of sectors, industries, and sociopolitical reputations publicly denounced the actions of this officer as racist. In doing so, many proclaimed solidarity with the Black community (The Plug, 2020). Some went so far as to assert their companies would take the lead in pursuing the course of action required to "…eradicate systemic racism, xenophobia, inequality & all forms of bigotry…" (Robbins, 2020). Their stances on racial justice were bolder and more public than we had seen en masse in the history of modern organizations. The following spring, corporate leaders extended similarly potent condemnations of anti-Asian violence in response to increased hate crimes and macro-aggressive acts against Asian American/Pacific Islanders living and working in the United States (Swant & Rooney, 2021).

On the heels of these proclamations, organizational insiders and outsiders challenged leaders to take stock of racial dynamics within their own walls and accept accountability for addressing racial inequities in-house. Heralded by some (dismissed or berated by others) as the aptest approach to countering racism in organizations, anti-racism became a focal point for how companies could amp up their existing diversity and inclusion (D&I) practices to foster climates and enact policies consistent with their rhetoric (Deggans, 2020). Two years later, we have seen progress, stagnation, and retrenchment in efforts to advance anti-racism, diversity, equity, and inclusion (ARDEI) in organizations. Still, many seek further guidance as they continue their journey to figure things out.

The National Academies of Sciences, Engineering, and Medicine seek to offer best policies and practices for ARDEI initiatives and outline goals for relevant future research and organizational strategic planning in science, technology, engineering, mathematics, and medical (STEMM) workplaces. They have commissioned this summary of counterarguments as part of their strategy to take an unbiased approach to review the evidence surrounding these initiatives in STEMM. Accordingly, this paper highlights key themes of arguments prevalent among scholars and employees who oppose ARDEI in STEMM organizations, integrating empirical evidence consistent with these themes. Notably, the author does not share the opposition to ARDEI around which this review is structured but acknowledges the utility of affording opposing perspectives reasonable consideration during decision-making.

Grounding Theme: There is No Systemic Racism in STEMM Organizations.

According to Ibram X. Kendi, one of the most acclaimed authorities and proponents of anti-racism in recent years, anti-racism involves a collection of anti-racist policies that lead to racial equity and are substantiated by anti-racist ideas (Kendi, 2019). Anti-racist policies are formal practices and programs that convey recognition of, expression about, and continuing activity in reducing racial inequity (Harrison et al., 2022). The exercise of anti-racist policymaking requires an examination of current racial inequities, identifying the drivers of those inequities, and the intention of redressing the systematic disadvantages associated with those inequities throughout history and in the present (Minoff, 2020). Across these characterizations, promoting racial equity (or eradicating racial inequity) is the desired end, and anti-racism is

proposed as a systemic solution to the problem of systemic racism. Therefore, the case for anti-racism in STEMM organizations hinges fundamentally upon evidence of systemic racism in STEMM organizations. However, opponents of ARDEI argue that this evidence is tenuous.

The Center for Disease Control (CDC) defines systemic racism as "structures, policies, practices, and norms resulting in differential access to the goods, services, and opportunities of society by "race" (e.g., how major systems– the economy, politics, education, criminal justice, health, etc. – perpetuate unfair advantage)" (Center for Disease Control, 2020). STEMM workforce participation rates partitioned by race indeed offer objective evidence of underrepresentation[1] of Black, Hispanics/Latinx, and American Indian or Alaska Native employees and overrepresentation among White and Asian/Asian American employees in science and engineering (S&E) occupations and with S&E degrees (National Center for Science and Engineering Statistics, 2019). Asians/Asian Americans are also overrepresented among all active physicians, while Whites are adequately represented, and all other racioethnic groups are underrepresented (Association of American Medical Colleges, 2018).

However, racial homogeneity and the lack of representation of one or more races within a field may be insufficient evidence of differential access aided and upheld by structures, policies, practices, and norms. A nonpartisan national survey asking 1,000 respondents about race, discrimination, and systemic racism in the summer of 2020 showed that about half of all Americans believed Black people face access discrimination, and about a third believe Black and white people are treated differently at work (Gillette, 2020). These assessments are consistent with data from a nationally representative survey conducted by the Pew Research Center in 2017 that reported less than one-third of all STEM[2] employees considered discrimination in recruitment, hiring, or promotions a major factor in the racial representation gap (Funk & Parker, 2018). Only about 5% of people working in STEM fields agreed that Black and Hispanic people are usually unfairly treated in the recruitment, hiring, or promotion processes within STEM organizations.

With skepticism about the existence of systemic racism, alternative explanations outside the purview of STEMM workplaces abound. Among STEM employees, the most commonly cited reasons for the underrepresentation of Black and Hispanic people working in STEM fields were lack of (a) access to preparatory STEM education or (b) encouragement to pursue STEM subjects when they were younger (Funk & Parker, 2018). Respondents to this survey also reported that the biggest problems in K-12 STEM education were the lack of involved parents, willingness to work hard, and interest in learning.

Black male students are significantly underrepresented in math, engineering, and physical science degree programs (Fry et al., 2021). However, one investigation showed that after accounting for high school preparation, the odds of declaring a physical science/engineering major were two times greater for Black males than for White males (Riegle-Crumb & King,

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[1] Underrepresentation and overrepresentation are relative to the respective group's representation in the United States workforce according to the Bureau of Labor Statistics.
[2] Use of STEM as opposed to STEMM only when the primary study or source material did not explicitly include the medical profession.

2010). These researchers also determined that Black females were closer than White females to closing the gap with White males in declaring a physical science/engineering major. A separate study revealed that Black men would have had the highest probability of graduating in physical-STEM fields if they had the family socioeconomic background and academic preparations akin to Asian males (Ma & Lui, 2017). This research generally underscores the paramount importance of family and educational support, which are beyond the scope of STEMM workplaces. Others may suggest the differences in the distribution of races within the STEMM labor force could be the products of applicant differences in qualifications, aptitude, or even job search behaviors (e.g., Shauman, 2017). These explanations reflect individual differences in human and social capital rather than systemic racism.

Beyond access to STEMM workplaces, there is also evidence of disparate exit from STEMM organizations. Among unemployed individuals with STEMM credentials, Black people were almost three times more likely (relative to "All groups" without consideration of racioethnicity, sex, or disability) to have been laid off (National Center for Science and Engineering Statistics, 2019). Black, Hispanic, and White females and Black males were also more likely than White males or Asians to leave a STEM job voluntarily. According to data from the National Science Foundation's (NSF's) 2010 Survey of Doctorate Recipients (SDR) and the Survey of Earned Doctorates (SED), about one in five Black STEM Ph.D. holders leave STEM to work in non-STEM fields (Bicakci & Berger, 2014). Accounts of differential treatment and racial abuse are not uncommon among racioethnic minorities in these fields.

I highlight this macro- and micro-level data to present the fundamental challenge to ARDEI in STEMM workplaces. Even though many Americans report it is now more common for people to express racist or racially insensitive views, and about 40% agree it is also more acceptable for people to do so (Horowitz et al., 2019), people may be strongly inclined to categorize accounts of racioethnic minorities experiences of mistreatment at work as isolated events of racial microaggressions (Sue et al., 2007; Wong et al., 2014), implicit bias (Greenwald & Benaji, 1995), or individual or interpersonal acts of racism rather than evidence of systemic racism. In doing so, they are also more likely to trivialize or negate these experiences' impact on racioethnic minorities (Sue et al., 2008), even as quantitative and qualitative data suggest they are not isolated incidents but are ingrained in STEM culture (e.g., Lee et al., 2020).

Experimental evidence demonstrates that Whites are much more definitive in labeling individual acts of racism (e.g., a teacher using racial slurs to refer to Hispanic and Black students) as "definitely an example of racism" but are more tentative in their assessments of systemic or institutional racism (e.g., a university ends its affirmative action program, resulting in a large drop in Black student enrollment; Unzueta & Lowery, 2008). Thus, even as evidence from a fully-crossed, between-subjects experimental design, of biology and physics professors (n = 251) from eight large, public, U.S. research universities demonstrates physics faculty rated Asian and White candidates as more competent and hirable than Black and Latinx candidates, and biology faculty rated Asian candidates as more competent and hirable than Black candidates, and as more hireable than Latinx candidates (Eaton et al., 2020), skeptics could still consider this individual implicit bias rather than systemic racism. Among those who believe racism is

primarily an individual phenomenon, there may be a preference for case-by-case solutions, sanctions, and punishments (e.g., Neysmith & Aronson, 1997) rather than proactive systemic or institutional policy change.

Supporting Key Theme 1: STEMM Organizations are Already Doing Enough to Foster Racioethnic Diversity.

Only about 20% of STEM employees say their workplaces devote inadequate attention to increasing racial and ethnic diversity (Funk & Parker, 2018). Indeed, agencies are currently utilizing several practices (e.g., targeted outreach and recruitment, partnerships with minority-serving institutions, and alignment of D&I goals with organizational missions and goals) to increase retention, inclusion, achievement, and advancement of individuals from groups historically underrepresented in STEM fields (National Science and Technology Council, 2021). Some opponents of enhanced ARDEI initiatives may point to the apparent effectiveness of existing efforts as an indicator that additional resources devoted to racial equity are unwarranted.

For example, data from the National Survey of College Graduates showed that the number of Hispanic/Latinx workers in S&E occupations sextupled between 1995 and 2019 and tripled for Black workers during that same time. Between 2010 and 2019, the number of Black STEM workers with a bachelor's degree or higher increased by 67%, and the number of Hispanic or Latino STEM workers grew by 99% for those with a bachelor's degree or higher. Overall, the percentage of underrepresented minorities in STEM grew while the representation of Whites declined between 2010 and 2019.

Further, inconsistent with the assumption that race intersects with gender to foster a disproportionate disadvantage for minority women (e.g., Crenshaw, 1990), data from several years of the National Science Foundation's Survey of Doctorate Recipients demonstrated that Black women did not earn significantly less than Black male scientists and engineers (Tao, 2018). Black women are also more likely than Black men or White women to become physicians and could be the closest to closing the representation gap in medicine. Similarly, among Black medical school faculty, Black women are the majority of medical school instructors, assistant professors, and associate professors. However, Black men remain the majority of Black full professors in medical schools, which could signal increased obstacles for Black women faculty (e.g., Ford, 2011).

Alternatively, it could indicate that we are witnessing progress that has yet to bear out fully. For individuals who believe STEMM organizations have intentionally promoted racial diversity and agree that existing efforts are working effectively, resistance to increased attention and resources for ARDEI may be more likely. While persistent disparate representation across races undercuts claims that the goal of racial parity in STEMM has been fully realized, some may argue that the current initiatives simply need more time rather than overhaul or double-down.

Supporting Key Theme 2: ARDEI Initiatives Harm Both White Employees and Underrepresented Minority Employees

As race-conscious approaches may also prompt identity threats for both overrepresented and underrepresented racial groups, they may be perceived as too controversial or risky for STEMM organizations to adopt (Foutty, 2021). In general, Whites are less supportive of race-conscious organizational policies and become increasingly resistant as policy prescriptiveness becomes stronger (Harrison et al., 2006). In general, White employees prefer more colorblind approaches and feel excluded from multicultural or race-conscious diversity efforts (e.g., Plaut et al., 2011). ARDEI efforts assume some degree of systemic racism in need of rectification. However, Whites may be particularly resistant since institutional (vs. individual) conceptions of racism heighten their awareness of White privilege, threatening their self-image (Unzueta & Lowery, 2008) with potentially counterproductive implications (Knowles et al., 2014).

Alternatively, racioethnic minorities are more likely to perceive race-conscious policies as personally and collectively beneficial (Harrison et al., 2006). Underrepresented minorities also have more favorable outcomes within organizations where White employees recognize and celebrate (vs. minimize) racial group differences (e.g., Plaut et al., 2009). However, this generalized belief that racial differences are worthy of focus within the organization could also backfire when Whites feel threatened (e.g., Vorauer & Sasaki, 2011). Whites with more race-conscious diversity ideologies may perceive more intergroup differences between Whites and racioethnic minorities and may also be more likely to rely on racial stereotypes in their judgments of others (e.g., Wolsko et al., 2000). Additionally, Whites may demonstrate a bias favoring minorities who act in stereotype-consistent ways (e.g., Gutiérrez & Unzueta, 2010). In these ways, race-conscious approaches could deepen racial divides among employees.

Further, minority employees may feel devalued in contexts that draw disproportionate attention to their racial identity relative to their unique individual contributions to the workplace (e.g., Ely & Thomas, 2001). Since underrepresented minorities in STEMM fields often feel tokenized at work (e.g., Wingfield & Wingfield, 2014), the likelihood of internalized devaluation may be higher. Research suggests high-achieving minorities within STEMM organizations are quite likely to experience imposter syndrome (e.g., Collins, 2018), stigma consciousness (e.g., Pietri et al., 2018), and stereotype threat (e.g., Beasley & Fischer, 2012; McGee, 2018) with deleterious impacts on their well-being and professional trajectory. Minority employees are also keenly aware that race-conscious policies may further stigmatize them in the eyes of their White male peers, who may be more likely to presume them incompetent (e.g., Heilman et al., 1992).

Supporting Key Theme 3 – ARDEI Compromises Our Values and Integrity

Within the STEMM fields, there may also be a greater gravity afforded to values such as objectivity and credibility that may color decision makers' approaches to moral issues (Shapin, 1995). Commitment to such virtues may underlie concerns about the state of the field if STEMM organizations are perceived to value diversity at the expense of meritocracy. The ideal of a meritocratic employment context assumes that all organizational processes are evenly applied, and all organizational rewards are commensurate with individual contributions. Thus, evidence of disparities is not necessarily evidence of prejudicial discrimination. It is more likely to be interpreted as an indication of differential merit.

Evidence from NIH funding records shows racial and ethnic differences in NIH research awards (Hayden, 2015). However, Black applicants also reported fewer papers on their Biosketches, had fewer citations, and those that were reported appeared in journals with lower impact factors (e.g., Ginther et al., 2018). Such a finding could be interpreted as Black scholars making lesser contributions to the field. Supporting that conclusion, other research that revealed research topic choice alone accounts for over 20% of the funding gap after controlling for multiple variables, including the applicant's prior achievements (e.g., Hoppe et al., 2019). That might also suggest that the scholarly interests of underrepresented faculty are of lesser import. Armed with this evidence, opponents of ARDEI efforts may consider a more inclusive approach that incorporates a broader range of research topics as diluting the quality or significance of what "objective" and "credible" experts have deemed sound science.

Conclusion

Though the scientific method is objective and impartial, the scientific enterprise is a reflection of values and remains subject to politicized interpretations (Graves & Jarvis, 2020). Inherent to most opposition to ARDEI is the negation of structural or systemic racism as a verifiable fact. As a byproduct of this skepticism, efforts to advance ARDEI in STEMM organizations may counter significant resistance among those who believe STEMM workplaces have already demonstrated their commitment to diversity and inclusion and are doing so effectively, that ARDEI is detrimental to both racioethnic minority and majority group employees, or that these efforts undermine the core values upon which science is built. There may always be some evidence-based reason not to advance ARDEI in organizations for this population. Still, ARDEI remains fertile ground for constructive conversations within STEMM organizations (e.g., Gosztyla et al., 2021).

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