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Small Business Human Resources Practices for Expanding Diverse Talent in Manufacturing Abstract

Prácticas de recursos humanos para ampliar la diversidad de talento en las pequeñas empresas del sector manufacturero

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Abstract
To embrace Industry 4.0 transformation, it is essential to address talent deficits in skilled labor. The shift in manufacturing from manual tasks to specialized competencies requires proficient talent to stay competitive. Therefore, organizations must reassess and adapt their human resource management (HRM) strategies to optimize employee success. Presently, there is an imbalance in the demographic makeup of the manufacturing talent pool, as 77% of workers are White (U.S. Census, 2022), a percentage significantly higher than the 68% of the White adult working population in North Carolina (Bureau of Labor Statistics [BLS], 2021). By tapping into domestic racial talent and international candidates, companies can purposefully cultivate a varied workforce. This research seeks to pinpoint effective HR strategies (strategic, tactical, and operational) of Small Business Manufacturers in North Carolina that bolster diverse recruitment and retention. The research involved two distinct business case studies, employing semi-structured interviews and observational notes for data gathering. The study leveraged Merriam's (1998) bounded systems of action approach to discern impactful HR methodologies. Strategic HR themes were (1) business rationale, (2) community involvement, and (3) workforce diversity. Tactical HR themes were (1) equal training prospects and (2) structured/unstructured training. For operational HR practices, the themes included (1) open communication, (2) leadership direction, and (3) empowering employees.

Keywords: Industry 4.0, Human Resource Management (HRM), Diverse Recruitment and Retention, Small Business Manufacturers, Workforce Diversity

JEL Classification: M14

Resumen
Para abordar la transformación de la Industria 4.0, es esencial hacer frente a la escasez de mano de obra cualificada. El cambio en el sector manufacturero, que pasa de tareas manuales a competencias especializadas, requiere talento competente para mantener la competitividad. Por lo tanto, las organizaciones deben reevaluar y adaptar sus estrategias de gestión de recursos humanos (GRH) para optimizar el éxito de los empleados. En la actualidad, existe un desequilibrio en la composición demográfica de la reserva de talento del sector manufacturero, ya que el 77 % de los trabajadores son blancos (U.S. Census, 2022), un porcentaje significativamente superior al 68 % de la población activa adulta blanca de Carolina del Norte (Bureau of Labor Statistics [BLS], 2021). Al recurrir al talento racial nacional y a candidatos internacionales, las empresas pueden fomentar de forma deliberada una plantilla variada. Esta investigación pretende identificar estrategias de RR. HH. eficaces (estratégicas, tácticas y operativas) de las pequeñas empresas manufactureras de Carolina del Norte que refuercen la contratación y la retención de personal diverso. La investigación incluyó dos estudios de caso empresariales distintos, en los que se utilizaron entrevistas semiestructuradas y notas de observación para la recopilación de datos. El estudio se basó en el enfoque de «sistemas de acción delimitados» de Merriam (1998) para identificar metodologías de RR. HH. de gran impacto. Los temas estratégicos de RR. HH. fueron: (1) la justificación empresarial, (2) la participación en la comunidad y (3) la diversidad de la plantilla. Los temas tácticos de RR. HH. fueron: (1) igualdad de oportunidades de formación y (2) formación estructurada/no estructurada. En cuanto a las prácticas operativas de RR. HH., los temas incluyeron: (1) comunicación abierta, (2) orientación del liderazgo y (3) empoderamiento de los empleados.

Palabras clave: Industria 4.0, gestión de recursos humanos (GRH), contratación y retención de personal diverso, pequeñas empresas manufactureras, diversidad de la plantilla
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Introduction

Manufacturing firms are navigating intensified talent shortages amid rapid digital transformation associated with Industry 4.0. The integration of advanced technologies such as artificial intelligence, automation, and data-driven systems has increased the complexity of production and heightened demand for specialized skills (Amladi, 2017; Ustundag & Cevikcan, 2018). Scholars and practitioners agree that the adoption and execution of Industry 4.0 technologies within manufacturing is critical for the operational efficiency, sustainability, and competitive advantage (Semiun et al., 2026; Tegethoff et al., 2025). Despite the transformative implications of Industry 4.0, small and medium-sized enterprises (SMEs) have been slow to adopt technologies (Lassen & Larsen, 2025; Gan, 2023; Jamwal et al., 2025; Moeuf et al., 2018). At the same time, workforce disruptions linked to demographic aging, early retirements, and post-pandemic labor shifts have constrained available talent pipelines (Kuzior et al., 2022; Pew Research Center, 2021). Small and medium sized manufacturing enterprises face particular vulnerability, as they often operate with limited formal human resource infrastructure while competing for skilled labor in tight markets (Gallardo-Gallardo et al., 2013).

Simultaneously, manufacturing remains racially and culturally underrepresented relative to broader demographic trends in the United States (Ozkazanc-Pan, 2019; U.S. Census, 2022). Diverse talent has been linked to innovation and organizational adaptability, both critical in technologically evolving environments (Choi et al., 2017). Yet most research on talent management and diversity strategies has focused on multinational corporations with formalized HR systems (Rana & Sharma, 2019; Singh et al., 2021), leaving limited understanding of how small manufacturing firms enact diversity-oriented human resource practices under structural constraints. Within manufacturing, small businesses represent 98% of the sector in the United States, consequently more research is needed in the SME sector. The SME manufacturing context is theoretically important because it represents a unique environment where Industry 4.0 skill demands, workforce homogeneity, and informal ad hoc HR infrastructure intersect simultaneously. Unlike larger organizations or SMEs in sectors such as retail or healthcare, small manufacturers often rely on highly relational, community-embedded workforce practices to address recruitment, retention, and inclusion challenges. This study addresses that gap by examining how two small manufacturing firms operationalize diversity-oriented human resource (HR) strategies in the context of Industry 4.0 and labor scarcity. Extending Shen et al.'s (2009) framework to the small business manufacturing context, this research foregrounds leadership identity, community embeddedness, and employee voice as mechanisms through which small and medium enterprises (SMEs) attract and retain racially and culturally diverse talent. By demonstrating how strategic, tactical, and operational HR practices are shaped by firm size, ownership structure, and resource constraints, this study advances small business scholarship on human capital and inclusion in manufacturing.

This study contributes to the literature by demonstrating that small manufacturing firms, constrained by limited formal HR infrastructure yet uniquely positioned by owner-manager influence and community roots, operationalize workforce inclusion through relational leadership, localized talent pipelines, and adaptive HR practices that extend Shen et al.'s (2009) framework beyond large-firm assumptions. Industry 4.0 actively shapes the skill demands that make building culturally diverse talent pipelines both urgent and necessary in this sector. Industry 4.0 magnifies the critical need for inclusive talent strategies, as advanced manufacturing environments require organizational agility, continuously equipping a skilled labor workforce with strong technological capabilities. For SMEs with a shallow workforce pipeline, prioritizing inclusive talent expansion not only alleviates ethical concerns but contributes to manufacturing reputation and advancement of job quality. Equally, expansion of talent acts as a strategic maneuver to keep pace with innovation, enhancing skills necessary to strengthen technological transformation.

Objective

Small and medium-sized manufacturers face persistent talent shortages and underrepresentation of racially and culturally diverse workers. Nationally, 20 percent of manufacturing workers are non-White compared to 32 percent of the non-White adult working population in North Carolina (BLS, 2021; U.S. Census, 2022). African Americans and Latinx individuals also remain underrepresented in STEM roles relative to their overall workforce participation (Diggs-Andrews et al., 2021; Funk & Parker, 2018). Federal initiatives such as Executive Order 13985 and the Talent Pipeline Challenge further emphasize workforce equity and demographic alignment in critical industries (Vanchan et al., 2017; White House Press, 2022), increasing pressure on manufacturers to diversify talent pipelines. Although talent management is well studied in multinational corporations, strategies differ in small and medium enterprises, and limited empirical research examines how small manufacturers enact diversity-oriented HR practices to recruit and retain racially and culturally diverse talent (Gallardo-Gallardo et al., 2020; Van Zyl et al., 2017). This lack of context-specific, evidence-based guidance limits SMEs' capacity to address shortages and underrepresentation despite evidence linking diversity to productivity and competitiveness (Kapur, 2022).

Most workforce diversity research centers on large firms with formalized HR infrastructures. Far less is known about how small and medium-sized manufacturers design and implement diversity-oriented HR practices within resource-constrained contexts shaped by owner-manager centrality, informal systems, and

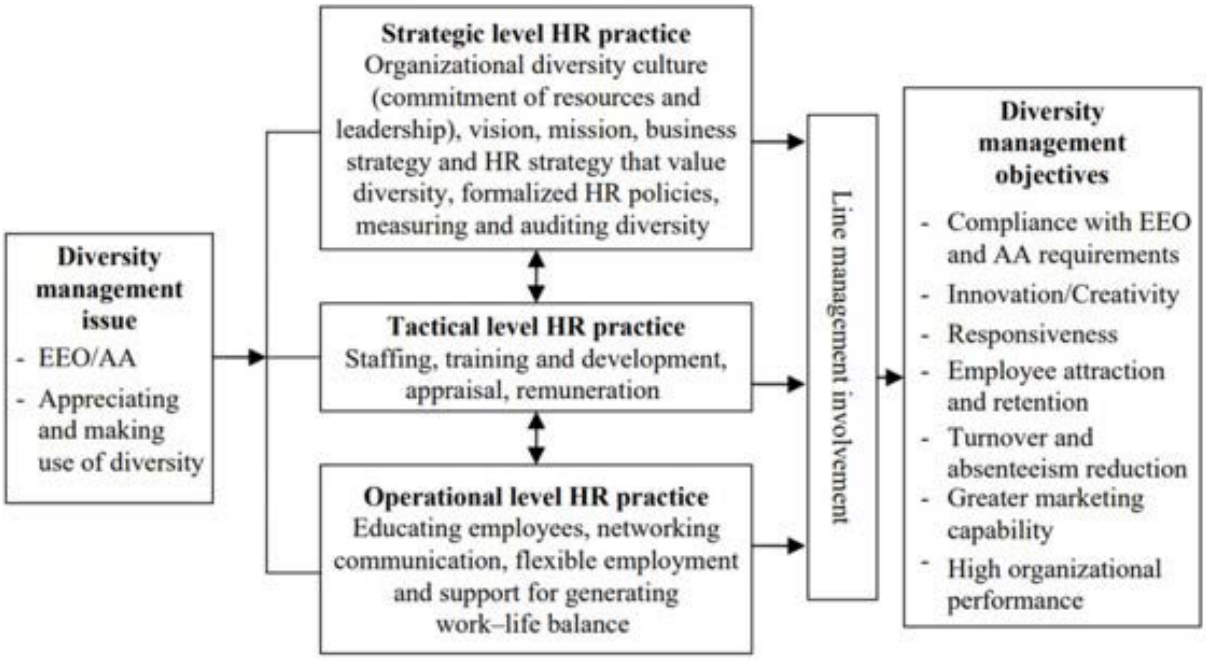
community embeddedness. This gap constrains theoretical understanding of how SMEs construct inclusive talent strategies distinct from large-firm models. Using a qualitative multiple case study of two small manufacturing firms in North Carolina, this study examines how leaders operationalize strategic, tactical, and operational HR practices to recruit and retain racially and culturally diverse talent. The findings contribute to small business scholarship by identifying context-specific mechanisms through which SMEs build inclusive workforce systems outside formal corporate structures.

Theoretical Framework

Shen et al. (2009) introduced a framework (Figure 1) to address workplace diversity and essential HR practices at strategic, tactical, and operational levels. This framework aligns diversity goals with Talent Management (TM) strategies, emphasizing employee attraction, retention, and performance. It underscores the importance of integrating diversity management with the active participation of line management. McMahon (2010) highlighted the necessity of diversity competence for global competitiveness. Several researchers confirm the importance of diversity management for a global competitive edge. Diversity Management refers to organizational strategies developed to manage a diverse workforce and ensure equality (Dennissen et al., 2020; Nkomo & Hoobler, 2014). Equal Employment Opportunity (EEO) and affirmative action (AA) originated from the 1960s civil rights movement (Shen et al., 2009). While EEO is legislation-driven, the business rationale should propel diversity management. Shen et al. (2009) view EEO/AA as foundational to diversity management.

Figure 1

A Framework for HR Diversity Management



Source: Shen et al. (2009)

Effective diversity management operates across strategic, tactical, and operational HR levels. Strategically, leaders must demonstrate visible commitment and embed diversity into core values, often driving cultural change. Tactically, HR policies should align with organizational goals through inclusive recruitment, training, performance management, and attention to employee perceptions. Operationally, leaders promote cultural awareness, networking, and flexible work practices. Ongoing line management involvement, historically overlooked, is critical to effective implementation. When well executed, these practices reduce turnover and enhance organizational performance. The Shen et al. (2009) framework guided this study by structuring analysis around strategic, tactical, and operational HR practices. By linking diversity goals with talent management, it enables comprehensive examination of how small manufacturing firms recruit, develop, and retain racially and culturally diverse employees. Its multi-level design supports a holistic understanding of how diversity practices are enacted and experienced across organizational levels.

Research Questions

Research Question 1: What "Strategic Level HR Practice" do employers at small business manufacturing companies perceive effectively impacts the inclusive recruitment of racially and culturally diverse employees?

Research Question 2: How do employers at small business manufacturing companies perceive *"Tactical Level HR Practice"* training and development opportunities have contributed to the retention of racially and culturally diverse talent?

Research Question 3: What "Operational Level HR Practice" do employers at small business manufacturing companies perceive effectively impact the inclusive retention of racially and culturally diverse employees?

Literature

Manufacturing firms face persistent talent shortages intensified by technological transformation and post-pandemic labor disruptions. The integration of automation and Industry 4.0 technologies, including artificial intelligence and advanced digital systems, has increased demand for specialized skills while narrowing available labor pipelines (Ebie & Djebarni, 2011; Ozkazanc-Pan, 2019). Equally, scholars agree that digital competence of leadership, especially, will become increasingly significant for innovation among SMEs (Sony & Naik, 2020; Sycheva & Verdu-Jover, 2025). Research by Sony and Naik (2020) indicated that leadership style should be further explored as a contributor to the successful adoption of Industry 4.0. Adopting digital practices can enable firms to "transform their operational and strategic process through Industry 4.0" (Lara-Pérez et al., 2026, p. 4).

Although workforce diversity in the United States was historically shaped by civil rights legislation and regulatory frameworks such as the Equal Employment Opportunity Commission and affirmative action, contemporary scholarship increasingly links workforce heterogeneity to innovation, productivity, profitability, and competitive advantage (Brodock & Massam, 2016; Ebie & Djebarni, 2011; McKinsey Global Institute, 2017). In manufacturing and STEM fields, racially underrepresented populations, particularly Black and Native American/Indian workers, remain disproportionately excluded from technical pathways (Harper, 2010; NCSES, 2021). Recruitment and training practices are therefore central mechanisms through which firms can broaden access to talent, yet these functions are especially challenging for small firms operating under financial and administrative constraints (Shen et al., 2009; Van Zyl et al., 2017).

Human resource management in small and medium-sized enterprises differs structurally and strategically from large corporations. SMEs typically operate with informal or minimally formalized HR systems, where hiring, training, and retention decisions are concentrated in the hands of owner-managers rather than specialized HR departments (Harney & Alkhalaf, 2020). Owner manager centrality means that leadership identity, personal values, and relational networks significantly shape workforce outcomes. Unlike large firms that rely on formalized compliance systems and structured diversity infrastructures, SMEs often enact workforce inclusion through relational leadership and adaptive, practice-based approaches embedded in daily operations (Richard & Johnson, 2001). Resource constraints and the liability of smallness further shape HR strategy, prompting firms to rely on resource bricolage and locally embedded recruitment channels (Potgieter & Mokomane, 2020; Sequeira et al., 2018). International scholarship has examined HR practices in small firms across South Africa, Canada, Australia, and Germany (Dagher et al., 1998; D'Netto et al., 2014; Fenwick et al., 2011; Potgieter & Mokomane, 2020; Wagar & Rondeau, 2006), yet systematic reviews indicated a significant gap in U.S.-based research on workforce strategies within small manufacturing enterprises (Harney & Alkhalaf, 2020). This gap underscores the need to examine how SMEs design and enact context-specific human resource practices shaped by firm size, ownership structure, and resource constraints.

Methods

This study employed a qualitative multiple case study design to examine how small manufacturing firms in a southern region of the United States operationalize inclusive racial and cultural hiring practices. Qualitative inquiry is well suited to exploring how and why organizational actors interpret and enact HR practices (Agee, 2009; Patton, 2015; Pratt, 2009), and its use in HRD research continues to expand. A case study approach enabled in-depth analysis of diversity-oriented HR practices within bounded SME manufacturing contexts (Merriam, 1998; Yin, 2003). Two firms were purposely selected based on workforce diversity. Consistent with common U.S. manufacturing classifications (Small Business Administration, n.d.), both firms were categorized as SMEs based on employee size (less than 500). However, Westridge Manufacturing represented a comparatively more formalized midsized enterprise while Thayer Manufacturing reflected a smaller owner managed structure. Data were collected through semi-structured interviews with organizational leaders and site observations, focusing on strategic, tactical, and operational HR practices. Data were analyzed using thematic and axial coding with ATLAS.ti, and credibility was strengthened through triangulation and member checking (Creswell et al., 2007; Tracy, 2020). Westridge Manufacturing is a family-owned firm with

approximately 100 employees and a diverse workforce, and Thayer Manufacturing is a minority-owned firm with fewer than 50 employees that prioritizes the inclusion of underrepresented populations. This exploratory, theory-building study was explicitly designed to capture leader level perceptions rather than employee experiences, illuminating mechanisms through which SMEs design and enact inclusive talent strategies. As such, the study did not intentionally include organizations resistant to or ineffective at building diverse cultures.

Participants and Procedures

The seven selected participants included owners, HR managers, training and development coordinators, and other supervisory roles deemed essential by the manufacturing firm's owner. These individuals possessed significant insight and expertise regarding HR practices and the integration of diversity management initiatives within the organizational framework. Participants were chosen from clients of the North Carolina Manufacturing Extension Partnership (NCMEP), a public-private initiative aiding Manufacturing SMEs with various services, including those in underserved areas or seeking government contracts (National Institute of Standards and Technology, n.d.). The researchers selected them based on their knowledge of leadership commitment to diversity-centered initiatives through informal and formal channels (public awards) within the state. The researchers contacted four enterprises via email, but only two met the criteria and were invited to interview after IRB approval. Using purposive sampling, a method for targeted insights (Patton, 1990; Tracy, 2020; Walters, 2001), the researchers selected businesses with successful inclusive hiring practices. Westridge Manufacturing, the larger company, had a sample of four, including its HR manager, training and development manager, and additional supervisors recommended by the company owner. Participants were informed of their right to withdraw at any time, pseudonyms were assigned to protect confidentiality, and all data was securely stored on a university issued device in a locked location. Since participants were in leadership or HR roles, their responses may have reflected a more positive view of the organization's inclusion practices.

Results

Westridge Manufacturing Overview

Westridge Manufacturing, established in 1935 in New York City's garment district, is a third-generation family business. Initially focused on women's undergarments, the company pivoted to support military production in 1952. This change required workforce expansion, leading them to relocate to the South following the textile industry's migration to the Southeast. Currently, the company employs approximately 100 individuals, with a significant immigrant presence. The workforce consists of one-third Eastern European, one-third Hispanic, and onethird local North Carolinians. Table 1 provides an overview of the personnel interviewed, including their roles, participant pseudonyms, and descriptions of their contributions to the HR leadership function.

Table 1

Westridge Manufacturing Overview and Key Personnel

Role	Description
Evan, Chief Executive Officer	Provides strategic direction, emphasizing inclusivity and community engagement. Servant leadership philosophy shapes HR practices across the organization.
Phil, Senior Human Resources Leader	Brings over 25 years of HR experience. Collaborates across HR and training teams to guide strategic and operational functions. Also serves as a university lecturer in HR.
Cindy, Human Resources Talent Manager	Over 30 years of HR experience. Leads recruitment, interviewing, hiring, and onboarding. Certified by the Society for Human Resource Management. Key contributor to talent management and retention strategies.
Olivia, Training and Development Lead	Oversees internal training and employee progression. Experience in nonprofit inclusive hiring initiatives informs operational and tactical HR practices focused on workforce diversity and retention.

Thayer Manufacturing Overview

The small business manufacturing firm focuses on molding technologies capable of developing various molds, using 3-D printing processes. The products cross various industries including automotive, medical, entertainment, and more. The firm serves both domestic and international customers, and its staff is 85% minority.

Table 2 provides an overview of the personnel interviewed, including their roles, participant pseudonyms, and descriptions of their contributions to the HR leadership function.

Table 2
Thayer Manufacturing Overview and Key Personnel

Role	Description
Jason, Chief Executive Officer	Engineer with over 15 years of experience. Oversees strategic, tactical, and operational HR practices. Leads leadership development, customer engagement, and community partnerships.
Tori, Human Resources Manager	Directs all people operations, including recruitment, retention, training, safety, compliance, and employee recognition. Promotes a culture of learning and development.
Ben, Business Development Leader	Oversees supply chain operations, technical training initiatives, and financial forecasting. Leads community outreach efforts including plant tours, summer camps, and public engagement events.

Research Question 1 Findings: Strategic HR Practices

Westridge Manufacturing underscores the importance of diversity in its strategic HR practices. Key themes that emerged include prioritizing people, fostering innovation, embracing diversity of thought, ensuring representation, and promoting inclusivity to support a competitive advantage. The company believes that diversity is more than just business performance; it's about creating opportunities for everyone. Olivia, a company representative, highlighted that diversity brings "different ideas, different perspectives, and different backgrounds," which are crucial for informed decision-making. Evan, another representative, emphasized the importance of individuals and their ability to work well together, stating, "What's important to me has always just been the individuals and the people that we bring in."

In terms of Diversity, Equity, and Inclusion (DEI), Cindy shared, "When I think of DEI, I think of diversity as inclusion of many different backgrounds, economic, generational, all of those things. Because when you have a diverse group, you tend to get a lot of good answers, a lot of insight, and a lot of different viewpoints." Olivia further stressed the significance of representation, suggesting, "It's just really nice to have your company reflect the community." When it comes to its business strategy, Westridge Manufacturing is guided by its mission, vision, and core values, with a particular emphasis on community involvement. Evan pointed out the necessity of looking across all groups when recruiting, stating, "I don't feel that we can ever find the workforce that we need from one particular group. We need to look across all particular groups."

The organizational culture at Westridge Manufacturing is deeply rooted in its core values, which include respectful relationships, teamwork, empowerment, honesty, excellence, and community involvement. Evan highlighted the company's efforts to ensure everyone understands and embodies this culture, emphasizing, "We're just trying to make sure that everybody understands the culture that we have here." They also make significant efforts to be inclusive, with Cindy noting, "The biggest thing is when people come in, we ask them, do you want an English application? Do you want a Spanish application?"

Lastly, in terms of HR strategy, while the company doesn't set specific diversity targets, the company does have policies to ensure equitable and fair hiring practices. Cindy employs a blind hiring approach to minimize bias and ensure fair hiring where specific demographics cannot be determined based on name (ethnicity, race), residential socioeconomic area, or other potential identifiers. This approach allows managers to address skill-based matching for the desired roles. Cindy also noted, all managers were hired on applicant reviews and screening processes to ensure continuity. They also have a referral program, with Phil noting,

"[Employees] typically won't recommend anybody [they] didn't want to work beside." In essence, Westridge Manufacturing's approach to HR and diversity showcases its commitment to inclusivity, community engagement, and the value it places on a diverse workforce, backed by direct statements from their representatives.

At Thayer Manufacturing, strategic HR practices are driven by a strong minority leader who seeks to build a diverse organization that embodies the core values he sought as a Black engineer in the field. Jason mentioned they "take a holistic view of different backgrounds" to inform "work practices, and the best environment for employees," which strengthens innovation. Tori noted that this approach does not lean toward "one group of people when making decisions." Embracing diverse cultures has amplified their position among global customers, as Jason noted during customer tours of the factory, "they are pleased about it [diversity]." To gain diverse candidates, Thayer casts a wide net, recruiting employees across various industries and providing upskilling as needed. Additionally, the CEO maintains high visibility in the community, offering internships, summer camps (middle school), and attracting students in a new apprenticeship program. More broadly, Thayer's work in the community, and among customers is elevating the field of manufacturing. Ben mentions that their engagement in the community seeks to "change the reputation of manufacturing" so students do not see it as a "dirty job."

Following inclusive recruitment, Thayer shifts focus to retention efforts. We refer to HR strategy as "shifting attention to retention," where strategies immediately focus on employee value, appreciation, and benefits.

Participants often connected diversity to both innovation and adaptability, which are increasingly important in Industry 4.0 environments characterized by rapid technological change and evolving production systems. Leaders described diverse hiring not simply as representation, but as a mechanism for strengthening problem-solving, flexibility, and organizational responsiveness in technologically complex manufacturing settings.

Research Question 2 Findings: Tactical HR Practices Insights

The main themes surrounding entry-level training were equitable training, skills matrix, and career advancement. Leadership training themes included informal training, compliance training, and external training.

Training Opportunities for Entry-Level Employees

Westridge Manufacturing offers multilingual training to cater to all employees. The training structure is distinct, with a dedicated training space and a coordinator supported by bilingual trainers. The training coordinator collaborates with HR to align with the talent management plan. Olivia describes the balance between retaining skilled employees and training them for other roles as a "push and pull from both the production and HR side." The training model uses a skills matrix to gauge technical skills. Olivia explained that operators progress when they [operators] "produce at least 70% over 60 days." This transparent model promotes fairness and motivates employees, with Phil noting, "We would rather promote from within than hire from outside." Leaders described the training process as equitable, citing on-the-job training and a week-long paid training for new hires." Olivia emphasizes that progression depends on "how quickly they [staff] learn." The organization uses a skill matrix performance system that measures skills gained and productivity goals aligned with career advancement. The explicit tiered approach signals to staff and leadership how they can both obtain skill mastery and demonstrate readiness to take on more advanced roles. Before requesting a manager performance review or a test to the next level, the team reached a shared consensus on the progression. The training manager stated, "the system ensures transparency and accountability for both the staff and leaders." These internal training systems were particularly important within Industry 4.0 contexts where employees were expected to continuously adapt to evolving technologies, production systems, and digitally integrated workflows. Rather than recruiting exclusively for advanced technical expertise, firms emphasized internal upskilling and long-term employee development as strategies for sustaining competitiveness amid technological transformation.

Jason described Thayer Manufacturing's commitment to providing all staff with equal access to training, linking this commitment to his own limited training opportunities as a minority employee. He recalls managers' systematic treatment, saying, "You can't be a supervisor, you can't be a lead… it [lack of training] was by design." The company prioritizes training and allows employees input on future opportunities. The company is invested in their growth and advancement, even helping build their resumes. At Thayer Manufacturing, advanced manufacturing technologies such as 3-D printing further elevated the importance of equitable access to technical training. Leadership emphasized that workforce expansion and upskilling were interconnected, as increasing access to technical development opportunities enabled broader participation in emerging manufacturing roles traditionally limited to narrow demographic groups.

Leadership Advancement Training Programs

Leadership training at Westridge Manufacturing is mostly informal, with leaders reading books on leadership topics. Phil mentions that during performance reviews, leaders identify their learning needs, leading to tailored training sessions. Cindy points out collaborations with local community colleges for middle management training. Mandatory training sessions, such as those on sexual harassment, are also conducted, as highlighted by Olivia.

At Thayer, leadership training is becoming a higher priority, with a training coordinator hired to lead leadership development on topics such as employee strengths, communication, and safety. External training is supported through third parties. Tori insists that communication training is pivotal for successful performance [results], citing that communication is "key to getting the job done." It is important to understand a colleague's "communication style" to ensure a collaborative work environment, where this information [communication style] helps to get the best results from that person. Other informal approaches to learning occur among leadership, including book clubs [leadership topics] and computer/technology training.

Research Question 3 Findings: Insights on Operational HR Practices

Dominant themes around management support included open communication, employee engagement, valuing and empowering employees, leadership synergy, and fostering an inclusive culture. Primary themes around organizational support were flexibility, employee support, active listening, retention strategies, fostering belonging, an inclusive culture, and addressing talent shortages.

Management Styles for Retaining a Diverse Workforce

Westridge Manufacturing's management style, led by the CEO, emphasizes transparent communication. Cindy observes, "Many people tend to follow that type of leadership style when they see that coming from the very top." The CEO often directly interacts with employees, with Olivia noting, "The CEO chats directly with employees… 'You've been here a year, thank you for your service.'" HR practices at Westridge Manufacturing prioritize proactive communication, with Cindy suggesting leaders "do not do exit interviews, you do stay interviews." Building trust is essential, and Cindy believes in "saying 'Good morning, how are you? How was your weekend?'" Phil noted the absence of a hierarchical divide at Westridge, saying, "We don't avoid employees. We speak to them." Phil also mentioned the CEO's unique approach: "He's responsible for leading, but they [employees] are empowered to carry out the mission and values of the organization." In Industry 4.0 environments requiring consistent adaptability and problemsolving, participants viewed trust, transparent communication, and employee engagement as catalysts for supporting organizational agility and workforce retention.

Organizational Supports for Retaining a Diverse Workforce

Phil highlighted that flexible scheduling is rare in manufacturing, but at Westridge Manufacturing, "We have been more flexible with work schedules than any of the others." The company recognizes common workforce barriers. Cindy recalls, "He [Staff Member] had to quit because together, he and his wife, both employees of the company, were collectively earning too much money" to meet income thresholds to maintain state funded benefits. Despite the barriers of socioeconomic policy, the company remained intentionally vested in "assisting the family" as they navigated systematic challenges. Their approach to flexibility is driven by a desire to retain talent. Phil states, "We want to retain the talent, and if we can be flexible with the work schedules and work around individual situations, we'd rather do that than lose the skill." To enhance belonging, the company promotes continuous training and connects with employees' cultural backgrounds. Olivia provides examples, "learning more about European stores, Russian candy, and ethnic foods shared during potlucks." The company also encourages employee creativity, with Olivia noting a staff member's artist mural on the factory floor. An engagement committee further supports employees. Olivia encapsulates the company's ethos, saying, "It's kind of supporting the whole person, instead of…just…come here, punch in and do your work, go home."

Research Question 1 examined the strategic HR practices employers perceive as effective in recruiting racially and culturally diverse employees. Findings underscore the central role of leadership and representation in small manufacturing firms, where recruitment is closely tied to the CEO's identity, values, and lived experience rather than a formal HR infrastructure. In these settings, leadership representation functions as both a cultural signal and a recruitment mechanism, with minority leaders influencing internal hiring priorities and external perceptions of manufacturing as an accessible pathway. Community engagement also emerged as a key strategy. Rather than relying on national branding, SMEs leverage localized reputation, employee referrals, and partnerships with nonprofits and workforce organizations to expand diverse talent pipelines in ways aligned with their resource constraints and community embeddedness. This finding underscores the centrality of leadership agency in small and medium-sized enterprises. In SMEs, strategic recruitment is not institutionalized through formal HR systems but enacted through owner-manager discretion and identity. Leadership representation therefore functions as both symbolic and operational capital, shaping how talent pipelines are constructed and accessed.

Research Question 2 examined how employers perceive the role of tactical level HR practices in retaining diverse talent. Equitable training strategies emerged as a cornerstone of retention. For small business owners, access to skill development is not merely a compliance issue but a practical pathway to internal mobility and long-term workforce stability. Unlike large firms that may implement standardized corporate training modules, SMEs blend informal mentorship with structured skill development to meet individual employee needs. These findings challenge assumptions that SMEs lack the capacity to implement meaningful talent development strategies. Instead, the study suggests that SMEs often enact highly adaptive and individualized approaches to training that support retention through proximity, flexibility, and relational accountability. By tailoring both formal and informal training opportunities, small manufacturers create conditions that support professional growth and reinforce employee commitment. These results highlight the role of informal skill development in resource constrained firms. Unlike large organizations with standardized training infrastructures, SMEs rely on adaptive, relationship-based development practices that align with their structural flexibility. Informal mentorship and individualized training pathways emerge not as deficiencies, but as context responsive mechanisms that sustain retention.

Research Question 3 focused on operational HR practices employers believe effectively retain diverse employees. The small business organizational structure, characterized by flat hierarchies and direct communication channels, emerged as a distinct advantage. Unlike large firms with multilayered bureaucracies, SMEs can cultivate cultures grounded in transparency, trust, and rapid responsiveness. For small business owners, this structural proximity allows leadership to address concerns quickly, reinforce accountability, and adapt practices in real time. This finding challenges the liability of smallness narrative by illustrating how structural

simplicity can function as a strategic asset. Promoting a sense of belonging through cultural considerations also surfaced as critical. Rather than relying on formal diversity programming, SMEs operationalized inclusion through everyday practices such as addressing language barriers, recognizing religious observances, and acknowledging cultural traditions. For small firms, these actions were not embedded in corporate policy manuals but enacted through relational leadership and daily interaction. Collectively, these findings elevate the theoretical contribution by demonstrating that small manufacturing enterprises do not simply replicate large-firm models at a smaller scale. Instead, they operationalize workforce inclusion through leadership centrality, community embeddedness, adaptive training practices, and flat organizational structures that together constitute a distinct SME approach to talent strategy. Participants in these two firms described relational practices as important to their efforts to retain diverse employees. Flat organizational structures and proximity to leadership enable trust-based problem-solving and cultural responsiveness. This suggests that what is often characterized as the liability of smallness may instead function as a structural advantage in sustaining workforce commitment.

Taken together, these findings suggest that small manufacturing firms operate through an informal inclusion architecture. Rather than relying on formalized diversity infrastructures typical of large corporations, SMEs construct relational leadership as HR infrastructure, embed talent pipelines within local community ecosystems, and sustain retention through culturally responsive micro practices. Multilingual employment applications, cultural food sharing, accommodation of religious observances, and scheduling flexibility illustrate how inclusion is operationalized through everyday organizational actions. These mechanisms collectively demonstrate that SMEs do not lack capacity for workforce inclusion; instead, they enact inclusion through decentralized, relational, and contextually embedded systems that are structurally distinct from large-firm models. At the same time, the findings suggest that informality within SME HR systems functions as both a strength and a potential vulnerability. Informal structures enabled rapid responsiveness, trustworthiness, flexibility, and culturally adaptive practices that supported inclusion in ways often unavailable within highly bureaucratic organizations. Reliance on relational leadership and discretionary decision-making may also create risks around consistency, equity, and long-term sustainability, particularly when inclusive practices depend on individual leaders rather than formalized organizational systems. These tensions highlight the dual nature of informality in SMEs and suggest that relational leadership may simultaneously function as a mechanism for inclusion and a source of organizational vulnerability if leadership commitment changes over time. While these approaches enabled flexibility and responsiveness, they may also create inconsistencies in employee experience and limit accountability across organizational levels. If leaders exit an organization, the inclusive thought leadership may leave with them if no formal organizational practices govern culture and commitment to diversity. Similarly, reliance on community-embedded hiring networks may strengthen trust and retention while simultaneously narrowing access to candidates outside existing social or geographic networks. Therefore, SME inclusion practices may involve ongoing tradeoffs between adaptability, personalization, and structural consistency.

Theoretical Implications

The framework for HR Diversity Management (Shen et al., 2009) guided this study's examination of HR practices in small manufacturing firms. Consistent with Shen et al.'s (2009) emphasis on top management commitment, findings highlight the central role of CEOs and upper management in shaping culture and allocating resources. As Shen et al. (2009) argued, senior leaders must position diversity as a strategic priority, and in this study, CEO commitment was pivotal in fostering inclusive environments. However, the framework was developed primarily in the context of large organizations with formal HR infrastructures. Small and medium sized enterprises operate under different structural conditions, including owner-manager centrality, informal processes, flat hierarchies, and resource constraints. In these settings, strategic, tactical, and operational diversity practices are concentrated within leadership rather than distributed across formal systems. The findings therefore extend Shen et al. (2009) by demonstrating that in SMEs, diversity management is embedded in leadership identity, relational governance, and community engagement. Whereas Shen et al. (2009) primarily conceptualized a practical application for embedding HR Diversity Management practices into HRM to ensure diversity growth, this new Talent Expansion Framework (Suber & Bartlett, 2026) extends this model by integrating a participatory, reflexive, and action-oriented approach to talent expansion. This intentional shift enables shared accountability, thoughtful reflection, and applied practice for the implementation of sustainable inclusive talent management practices. Ultimately, the Talent Expansion Framework, shown in Figure 2, reconceptualizes diversity-oriented HR practices to focus to a holistic approach that broadens who is identified as talent, where talent is sourced, and how inclusion is enacted in everyday organizational practice.

Figure 2
Talent Expansion Framework



The study suggests that in SMEs, leadership identity, community embeddedness, and employee voice function as core mechanisms of talent expansion, particularly in the absence of formalized DEI infrastructures. Rather than relying on structured diversity departments or codified policies typical of multinational corporations, small manufacturers enact inclusion through relational leadership, localized hiring networks, and adaptive HR practices shaped by firm size and resource constraints. The adapted Framework for HR Diversity Management (Shen et al., 2009) emerging from this study integrates the Talent Expansion Framework in Figure 2, which emerged inductively through cross case thematic analysis as researchers observed that leadership identity, community embeddedness, and employee voice consistently functioned as mechanisms for expanding access to diverse talent within resource constrained SME manufacturing environments. The framework extends Shen et al. (2009) by repositioning leadership not only as a driver of diversity culture, but also as an active architect of talent expansion through relational and community embedded practices rather than primarily formal HR systems. The revised framework highlights the interconnected roles of leadership, community entities, and employees in expanding access to diverse talent pools and sustaining inclusive workplace environments. The extended framework includes a reflexive component that enables leaders to critically process their experiences, sense of self, and workplace context to support personal and professional growth (Schedlitzki, 2018). Collectively, the framework seeks to strengthen inclusive hiring, strengthen Industry 4.0 implementation, and support continuous improvement. By incorporating the Talent Expansion Framework as a theoretical extension, this study advances diversity management scholarship beyond compliance-oriented models and toward a dynamic, ecosystem based understanding of how small manufacturing firms operationalize inclusion in practice.

The findings contribute to scholarship by adding to existing Industry 4.0 literature that often emphasizes technical competencies, automation, and digital infrastructure; however, this study suggests that inclusive workforce systems are also critical organizational capabilities within technologically evolving environments. In the small manufacturing firms in this study, labor shortages associated with advanced manufacturing increase reliance on broader talent pools, internal upskilling, and adaptive learning cultures. Consequently, diversity management becomes intertwined with organizational resilience, innovation capacity, and technological adaptability rather than functioning solely as a compliance or social responsibility initiative. This positions inclusive HR practices as a strategic mechanism through which SMEs navigate Industry 4.0 transformation.

Leadership Identity and Style

Leadership identity and style are paramount in shaping an organization's approach to diversity. Leadership identity encompasses both the self-perception of leaders and how their values and backgrounds influence their stance on diversity. Leaders' personal experiences and affiliations with specific demographics can provide insights into their motivations and commitment to diversity management (Grøn et al., 2019). Furthermore, a leader's style, as described by Northouse (2022), determines the interactions and sense of belonging among staff. The manner in which a leader champions diversity can significantly influence the ease, cost, and speed of achieving diversity goals. Although including leadership at the center of inclusive practices is evident in

theory (Gotsis & Grimani, 2016; McCallaghan et al., 2019; Platania et al., 2025), the intentional practices for how leaders engage in effective inclusive talent management are not well-defined in the literature. Therefore, by explicitly adding leadership to this framework, we aim to attach accountability and commitment to inclusive workforce outcomes (Dreachslin, 2007).

Community Stakeholders

Community engagement is crucial for organizations to understand and tap into the local talent pool. With the evolving demands of Industry 4.0, companies need to proactively scout and train external talent to bridge skill gaps (Whysall et al., 2019). A proactive approach not only addresses these gaps but can also reduce hiring costs and expedite the onboarding process. Moreover, a strong community presence enhances a company's reputation, making it an attractive employer (Arasanmi & Krishna, 2019; Garcia-Alcaraz et al., 2022). Positive branding, as highlighted by Collins and Stevens (2002) and Khalid and Tariq (2015), can give companies a competitive edge in attracting top talent.

Employee Stakeholders

Given the high turnover rates in the manufacturing sector, especially among racial minorities (Kirchner & Stull, 2021; McKay et al., 2007), companies must involve employees in retention strategies. Employees' insights can illuminate ways to enhance workplace culture, making them feel more valued and supported. Their recommendations can also guide referral and training initiatives, ensuring that organizational growth is maximized (Arasanmi & Krishna, 2019; Kirchner & Stull, 2021). Ultimately, employee involvement promotes shared responsibility, contribution, and dedication, which strengthens organizational loyalty and cultural connectedness (Wickramasinghe, 2025).

Implications for Practice and Policy

The gap between diversity theory and workplace practice remains a challenge for many organizations. Even as affirmative action policies shift, alternative strategies such as sustained partnerships with nonprofits and educational institutions can expand access to diverse talent pools. Meaningful community engagement requires visibility, long-term commitment, and investment in resources (Rabl et al., 2018). Internally, transparent and accessible training systems are essential to ensure equitable opportunities for advancement and career progression (Shen et al., 2009).

Findings also point to the need for policy environments that better support workforce development. Complex hiring processes for non-U.S. citizens can discourage employers from accessing immigrant talent, despite its importance to sectors such as manufacturing (Cadenas et al., 2020). Without addressing structural barriers in education and employment systems, progress toward broader workforce representation may remain limited. Sustainable diversity management therefore requires not only organizational practices but also broader cultural and policy shifts that move beyond formal compliance toward genuine inclusion and respect (Rabl et al., 2018).

Limitations and Recommendations for Future Research

This research explored leadership and HR participants' perceptions of strategies for recruiting and retaining diverse talent in manufacturing and highlighted potential areas for future study. The study's leadership/HR practitioner focus limits our ability to determine how employees experienced the reported inclusion practices. Participants' accounts may also reflect social desirability or favorable organizational self-presentation. Purposefully selecting firms with demonstrated diversity commitments enabled examination of promising practices, but the absence of a contrasting case limits understanding of how these practices differ in firms with less commitment to diversity. Future research should include such contrasting cases. Additional directions for future research include examining how a leader's racial and ethnic identity influences hiring dynamics, investigating the CEO's role in shaping diversity management, comparing diversity practices between large and small organizations, and replicating the study in other STEM sectors facing underrepresentation. The study emphasizes the viability of diverse hiring amidst Industry 4.0 challenges and talent shortages, noting the U.S. manufacturing sector's need to diversify beyond its predominantly White demographic. It identifies HR practices that participants perceived as effective for promoting diversity, stressing the roles of leadership, community, and employees. The research concludes by discussing implications for policy, practice, and future research, suggesting a deeper exploration of the Framework of HR Diversity Management, and emphasizing the importance of leadership and key stakeholders in fostering a diverse workforce. Future follow-up studies with employees and community partners (i.e., colleges, workforce development) will continue to build upon the talent expansion framework in practice. Finally, the research findings are only confined to two SME manufacturing cases and may not be generalizable across all small business firms. However, it offers a starting point for discussion and future implications across small business and other industries.

Conclusions

While the recommendations outlined for fostering diversity and equity in the workforce are actionable, several systemic barriers hinder their widespread implementation. As Industry 4.0 continues to transform manufacturing work, inclusive recruitment, equitable upskilling, and relational workforce practices may become increasingly important mechanisms for SMEs to sustain innovation and workforce stability. One major obstacle is entrenched resistance to change in organizations that have historically benefited from homogeneous workforces. Such resistance often stems from implicit biases, organizational inertia, and a lack of urgency among leadership to prioritize DEI initiatives, especially when immediate financial returns are not evident. Additionally, many companies lack the resources or strategic frameworks needed to establish meaningful community partnerships or inclusive training systems. Building these relationships requires sustained investments of time, money, and human capital, which are often sidelined in favor of short-term goals.

The regulatory environment also poses challenges, particularly for hiring non-U.S. citizens. Complex visa processes, legal uncertainties, and high costs deter many businesses from tapping into immigrant talent pools, even though these individuals could significantly contribute to workforce diversity. Furthermore, the rollback of affirmative action has compounded systemic inequities, removing a key mechanism for addressing historical disparities. This shift often leaves organizations uncertain about how to legally and effectively promote diversity without appearing to engage in preferential treatment.

On a broader scale, societal attitudes towards diversity and equity remain a barrier. The cultural shift required to move from superficial tolerance to genuine appreciation for differences demands widespread education and a rethinking of entrenched power dynamics. Without addressing these systemic barriers, organizations may struggle to translate inclusive recruitment into meaningful, sustained change, leaving the gap between theory and practice unresolved.

Data Availability Statement

The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research, supporting data is not available, per IRB application approved by NC State University eIRB #: 25987.

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