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INNOVATION FROM BELOW? WORKER PARTICIPATION AND THE CULTURE OF IMPROVEMENT IN DIGITAL WAREHOUSING

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Purpose: This paper examines worker-led innovation in digitally managed warehouses, focusing on how frontline employees engage with organizational improvement schemes under conditions of algorithmic control. The study aims to explore the tension between participatory ideals and the practical realities of improvement implementation in environments characterized by metric-driven management. It seeks to understand how workers experience, interpret, and respond to organizational invitations for participation in process enhancements.
Design/methodology/approach: Based on 34 qualitative interviews, the study uses thematic analysis within an interpretive framework, supported by secondary sources.
Findings: The study reveals that although workers regularly propose practical improvements, their ideas often have limited impact on organizational decision-making. Improvement initiatives are perceived as symbolic rather than substantive, with workers describing a culture of superficial changes, lack of recognition, and a disconnect between efficiency metrics and operational reality. Participatory programs are frequently experienced as performative—emphasizing engagement over effectiveness—and constrained by hierarchical structures, algorithmic oversight, and cost-driven managerial logic.
Research limitations/implications: The findings are context-specific; future research should explore similar dynamics across sectors and countries, and examine ways to embed meaningful participation in digital systems.
Practical implications: Organizations must redesign participative practices to support authentic input, improve recognition, and align digital systems with frontline realities.
Originality/value: This paper contributes to the literature by critically examining the limits of worker-led innovation in algorithmically managed workplaces. It offers a rare empirical account of how participation is experienced on the warehouse floor under digital management. The study provides theoretical insights for researchers of work and employment and practical lessons for managers seeking to design more inclusive improvement systems in the digital economy.
Keywords: worker-led innovation; algorithmic management; employee participation; digital warehousing; participative management.
Category of the paper: Research paper; Case study.

1. Introduction

The rise of digital technologies in warehousing has transformed how work is organized, monitored, and managed, with algorithmic systems increasingly governing logistics operations. In response, companies have introduced participatory initiatives encouraging frontline workers to suggest operational improvements—often framed as empowering, innovative, and essential for continuous improvement (Bamber et al., 2014; Bradley, 2018; Fugate et al., 2018; Johnson, 2019; Nyberg, Wright, 2013). Yet the everyday experiences of workers reveal a more complex reality. Drawing on qualitative interviews with warehouse employees in Poland, this article explores how worker-led innovation unfolds in digitally managed environments, questioning the extent to which participation is substantive and whether algorithmic control enables or constrains improvement from below. Situating these practices within a longer tradition of worker involvement—from early labor activism to Kaizen-inspired models—this study engages with prior research emphasizing participation's benefits for motivation, innovation, and performance. However, as digital tools redefine workplace control, the terms and possibilities of participation shift, exposing a disconnect between the promise of inclusion and the lived realities of constrained influence, symbolic gestures, and undervalued expertise. This article contributes to current debates by examining the evolving role of participative decision-making within an algorithmically governed workplace.

2. Literature review

Worker-led innovation has long been a touchstone in the literature on organizational improvement, particularly in operationally intensive environments such as warehousing. Initially emerging in response to the rigidities of early industrial labor, the concept evolved significantly with the advent of the Toyota Production System (TPS) in the mid-twentieth century. TPS institutionalized participatory practices through its foundational principles of continuous improvement (Kaizen) and respect for people. Workers were actively encouraged to identify inefficiencies and propose solutions, embedding frontline insight into core operational processes. This approach was both radical and effective, challenging top-down managerial orthodoxy by emphasizing that those closest to the work were often best positioned to improve it. Such participatory systems resonated with broader humanistic and motivational theories, asserting that meaningful involvement in work processes contributes to employee satisfaction, innovation, and performance. Over time, this participatory ethos came to symbolize not only operational excellence but also a more democratic and dignified approach to work organization.

Industrial and organizational psychology provides a strong theoretical basis for understanding the benefits of employee participation in innovation. The Job Characteristics Model (Hackman, Oldham, 1976) argues that task variety, autonomy, and feedback are key factors that enhance job satisfaction. These elements are naturally promoted through participatory systems, where workers have the opportunity to shape their tasks and receive input on their ideas. Similarly, Self-Determination Theory (Deci, Ryan, 1985, 2000) positions autonomy as a fundamental psychological need, one that when fulfilled leads to greater motivation and engagement. Zhang and Bartol (2010) further extend this insight by linking autonomy to innovative behavior, highlighting how empowerment stimulates creativity in the workplace. In warehousing—where tasks are often repetitive and physically demanding—these benefits are particularly salient. Worker-led initiatives provide not only operational enhancements but also psychological enrichment, transforming routinized labor into more meaningful work. This psychological lens sheds light on why participatory models are more than tools for productivity—they are interventions that address deeper human needs.

Empirical case studies reinforce the theoretical promise of worker-led innovation. At XPO Logistics, for example, employee-driven initiatives led to improvements in both operational efficiency and job satisfaction (Bradley, 2018). Workers were encouraged to propose changes to workflows and equipment usage, leading to more streamlined processes that benefited both labor and management. A similar pattern was observed in a study by Fugate et al. (2018), which reported a 20% productivity increase and reduced employee turnover following the implementation of participatory practices in a mid-sized warehouse. At DHL, a bottom-up suggestion system contributed to reduced packaging waste and improved ergonomics, demonstrating the broader impact of frontline engagement (Johnson, 2019). These cases collectively illustrate that worker-led improvements can yield practical, innovative solutions that align with both operational goals and employee well-being. Such evidence suggests that employee participation is not merely symbolic or aspirational—it can be a central driver of business success, particularly in complex, fast-paced operational settings.

Comparative studies underscore the distinctions between participatory and top-down management models. Traditional approaches often prioritize efficiency and cost-cutting, frequently at the expense of worker engagement and satisfaction. Bamber et al. (2014) argue that such models tend to marginalize employee input, resulting in decreased morale and higher turnover rates. In contrast, participatory systems are associated with inclusive work environments, where employees feel valued and heard. Nyberg and Wright (2013) found that organizations embracing bottom-up approaches reported not only improved operational metrics but also higher levels of job satisfaction. The Institute for Corporate Productivity (i4cp, 2016) supports this view, noting that companies fostering worker-led innovation are more likely to be industry leaders. This body of evidence positions worker-led innovation not only as a moral imperative but also as a strategic advantage. Yet, even these comparative findings often rely on

legacy models of participation and do not fully consider how technological mediation—such as digital platforms and data-driven workflows—alters the landscape of worker engagement.

However, the recent digital transformation of warehousing complicates this ideal. Driven by the explosive growth of e-commerce and the demand for rapid fulfillment, the warehousing sector has undergone significant technological change (Boysen et al., 2019; Khalyn, 2019). In 2022, for instance, 75% of European internet users purchased goods online, fueling the expansion of warehousing infrastructure (Eurostat, 2023). To meet this demand, companies have adopted digital technologies that integrate inventory systems, e-commerce platforms, and delivery logistics into a single, data-driven ecosystem (Abbu et al., 2021; Galhotra, Dewan, 2020). This shift has facilitated the rise of quantified workforce management, in which employee activities are continuously monitored and optimized using algorithmic tools (Moore, 2017; Moore, Robinson, 2016). While enhancing visibility and traceability in supply chains, these technologies also introduce forms of labor management that prioritize data over dialogue.

The logic of digital warehousing mirrors the principles of Taylorism, emphasizing measurement, standardization, and efficiency while sidelining the social dimensions of work. Scholars have described this phenomenon as "digital scientific management" (Fuchs et al., 2022; Liu, 2022), where performance metrics dictate workflow decisions and reduce managerial discretion. Technologies such as wearable trackers, digital twins, and predictive analytics enable real-time oversight of labor processes (Petković et al., 2019; Jakobsen et al., 2018). While these tools theoretically offer opportunities for improvement, including ergonomic optimization and flexible scheduling (Oldham, Da Silva, 2015), they often do so without meaningful worker input. Moreover, the promise of “smart” warehouses frequently masks an environment of heightened surveillance, where data replaces deliberation and managerial authority is mediated through algorithms. As a result, the ideal of participatory innovation is overshadowed by a reality in which control is centralized and worker agency is diminished, even as participation is rhetorically upheld.

Understanding this tension requires attention to the organizational preconditions of effective participation. Employee involvement is not automatic; it depends on institutional structures, leadership commitment, and organizational culture. Wilkinson et al. (2010) outline multiple channels for participation, ranging from collective bargaining to informal feedback loops. High levels of engagement correlate with increased commitment, quality of work, and operational flexibility (Poutsma et al., 2003). However, these outcomes depend on trust between management and labor, as well as consistent investment in employee development (Millward et al., 2000; Lewin, 2008). In environments governed by algorithmic management, these relational and developmental investments are often deprioritized in favor of short-term efficiencies. The capacity for continuous learning and iterative improvement—hallmarks of successful participatory systems—may be stifled by rigid data-driven performance expectations and a lack of managerial discretion to act on employee suggestions.

Company culture plays a critical role in enabling or inhibiting worker-led innovation. A culture that values respect, transparency, and collaboration fosters the psychological safety necessary for employees to contribute ideas and challenge existing norms (Clark et al., 2013). Galeazzo and Furlan (2021) found that employee participation becomes increasingly vital as organizations mature in their continuous improvement journeys. Leadership involvement is essential: Parker et al. (1999), Prabhu and Robson (2000), and Rahmatullah et al. (2022) all emphasize that committed leadership shapes the tone and structure of improvement efforts. Al-Najem et al. (2012) further argue that a triangular organizational structure—comprising senior management, middle leadership, and frontline employees—is most effective in sustaining improvement cultures. In digital warehouses, where decision-making is often embedded in opaque algorithms and platform-based instructions, such leadership frameworks are less visible and potentially less impactful. Culture, once embedded in direct relationships and values, now risks becoming an abstraction in environments mediated by screens and metrics.

This discrepancy between the ideal and the reality of participation reflects a broader paradox in contemporary organizational management. On the one hand, worker-led innovation is promoted as essential for resilience, engagement, and competitiveness. On the other, managerial practices increasingly rely on surveillance, standardization, and centralized control. This duality echoes Cloke and Goldsmith's (2002) claim that traditional management structures are giving way to more democratic, collaborative forms—at least in theory. In practice, especially in digitally managed warehouses, participation often becomes performative rather than substantive. Workers may be asked for input through structured channels or surveys, but real decision-making power remains with management and algorithmic systems. The symbolic adoption of participatory language often serves to legitimize managerial authority rather than redistribute it.

The literature thus reveals a complex and evolving landscape. While the theoretical and empirical case for worker-led innovation remains strong, its application in digitally intensive environments is fraught with challenges. The structural conditions necessary for meaningful participation—trust, leadership, culture, and institutional support—are often absent or weakened in algorithmically governed workplaces. As a result, worker-led innovation risks becoming a symbolic gesture rather than a genuine organizational capability. Future research must grapple with this contradiction and explore how participatory ideals can be reconfigured to align with the realities of digital labor. Doing so requires interdisciplinary inquiry—bringing together management studies, labor sociology, and information systems—to better understand the interplay of agency, technology, and control.

Several research gaps remain. First, there is limited understanding of how worker feedback is integrated into continuous improvement processes in digitally managed warehouses (Bessant, Caffyn, 1997; Lam et al., 2015; Jurburg et al., 2017). While participatory structures may exist nominally, their actual influence on decision-making is unclear. Second, the impact of cultural,

organizational, and national contexts on participation has received insufficient attention. Although European firms are generally more participatory (Poutsma et al., 2003), cross-national comparisons could illuminate how different regulatory and cultural settings mediate worker engagement. Third, the warehousing literature tends to focus on technological innovation and productivity, often neglecting the subjective experiences of workers. As warehousing becomes a cornerstone of the digital economy, understanding how employees navigate, resist, and reshape improvement practices is essential. Fourth, there is little empirical work that explores how the tension between algorithmic control and participatory ideals is resolved in practice. Do workers find ways to influence digital systems? Can managers reinterpret data to amplify worker voice? These are vital questions that demand empirical scrutiny.

Taken together, these gaps point to the need for renewed scholarly attention to the lived experience of worker participation in digitally governed environments. Understanding how participatory ideals are challenged, adapted, or reimagined under conditions of algorithmic management is crucial for developing more inclusive and effective models of innovation. As the warehousing sector continues to evolve, so too must our frameworks for understanding what meaningful worker involvement looks like—and how it can be achieved in practice.

3. Context description

The outcome of growing global e-commerce and international trade has been a marked proliferation of warehousing operations across strategically positioned European regions. These regions offer logistical advantages through cost-efficient labor markets, proximity to consumers, and expanding transport infrastructure. Major logistics providers have capitalized on these features, positioning warehouses in Western Europe (Germany, Belgium, Netherlands, Denmark), Central Europe (particularly Poland and the Czech Republic), and the United Kingdom (Savills, 2020). Poland, in particular, has emerged as a leading logistics hub, favored for its economic transformation, institutional alignment with EU norms, and strategic geographic location.

Since the post-socialist transition, Poland has undergone significant economic restructuring. Following its accession to the European Union in 2004, the country attracted substantial foreign direct investment and prioritized infrastructure development. This trajectory, coupled with lower labor costs, has positioned Poland as a competitive and attractive destination for logistics and warehousing operations. The nation's institutional transformation from a centrally planned economy to a liberal capitalist model has facilitated this growth, especially by promoting a favorable climate for foreign capital (Bohle, Greskovits, 2007; Hardy, 2009; Kideckel, 2009).

The combination of EU integration, competitive costs, and skilled labor availability has led global firms with complex supply chains to establish major logistics hubs in Poland.

Poland's business environment is shaped by these post-socialist reforms, which emphasize economic openness and investor-friendly policies. Compared to Western European countries, Poland offers lower labor and tax costs, state-backed incentives, and access to the EU's single market. These factors have made it a preferred location for distribution and logistics operations. Despite persistent challenges like high transportation costs (Ellingstad, 1997), state-supported industrial zones and tax exemptions have helped mitigate such drawbacks. The warehousing sector has thus become central to Poland's role in labor-intensive outsourcing, encompassing not only storage and distribution but also auxiliary services such as IT and accounting.

Poland's warehousing growth has been closely linked to investments in its road network and transport infrastructure. The expansion of highways such as the A1, A2, and A4 has enabled the formation of major logistics clusters, particularly in regions like Upper and Lower Silesia, Poznań, and Warsaw (PKO, 2022). These improvements have spurred real estate development for industrial use. Since joining the EU, the warehousing market has grown steadily, with warehouse space reaching 25 million square meters by the first quarter of 2022—reflecting strong investor confidence and sustained tenant demand (AXI IMMO, 2023).

A wide array of global developers and logistics investors—including Panattoni, Segro, Prologis, Goodman Poland, and Hillwood—operate in the Polish market (Newmark Polska, 2019). These firms lease modern, high-tech storage facilities to international tenants such as Amazon, Carrefour, and Zalando. The leasing model dominates, with 7.0 million square meters of warehouse space rented in 2021 alone, up from 4.9 million in 2020 and 3.8 million in 2019 (BNP Paribas Real Estate, 2022). In these facilities, companies are increasingly turning to advanced technologies such as robotics, automation, and digital inventory systems, using autonomous machines and sophisticated data analytics to manage both workforce and inventory.

However, despite this rapid technological advancement and infrastructural expansion, the sector continues to face significant human resource challenges. There is a notable shortage of trained logistics professionals and warehouse staff, with estimates indicating a gap of between 30,000 and 100,000 workers (Piotrowska-Piątek, 2022). Compounding the problem is the sector's persistent image as low-status and physically demanding, which undermines recruitment efforts (GI Group, 2022). To counteract these trends, employers are increasingly offering financial incentives, vocational training, and broader social initiatives aimed at talent attraction and retention. Yet, high seasonal fluctuations and the prevalence of non-standard contracts—such as fixed-term and agency-based work—continue to characterize labor relations in the industry (PIE, 2022).

In 2021, logistics and warehousing contributed 5.7% to Poland's GDP and accounted for 6% of national employment (PIE, 2022). The sector comprises both large multinational corporations and a broad base of small and medium-sized enterprises, particularly in last-mile

delivery and transport. Labor segmentation is prominent, with varied employment arrangements across operational roles. Since 2015, there has been a significant rise in foreign labor, especially from Eastern Europe. This trend accelerated after the onset of the war in Ukraine, with many refugees entering Poland's labor market and taking up physically intensive warehousing jobs (Deloitte, 2022). The integration of this migrant workforce poses both opportunities and challenges in terms of long-term labor market stability and workforce development.

Overall, Poland's warehousing sector exemplifies the intersection of strategic policy, economic liberalization, and logistics modernization. It reflects how state institutions, international investment, and labor market flexibility can shape a national logistics strategy. The country's transformation into a key regional distribution hub has been underpinned by infrastructure growth, foreign investment, and cost-based competitiveness. However, persistent labor shortages, workforce segmentation, and the challenges of digital transformation suggest that the sector's continued growth will depend not only on infrastructure but also on addressing the social and organizational dynamics of its labor force.

4. Methodology

This qualitative study was conducted across two distinct research periods, in 2016 and again in 2023, and is grounded in the interpretivist paradigm, which seeks to understand social phenomena from the perspective of the participants (Schwartz-Shea, Yanow, 2012). The focus of the study was on two anonymized warehouse locations operated by a leading international e-commerce company in Poland. These sites were strategically selected based on their representativeness of typical operational, technological, and managerial practices within the warehousing sector. As case study research is particularly well-suited to exploring real-life contexts and workplace dynamics (Yin, 2018), the use of these two cases allowed for in-depth exploration of employee experiences within digital warehousing environments. The interpretive approach enabled the research to capture rich, situated meanings around work, innovation, and participation in environments shaped by algorithmic management.

Primary data collection was based on selected 34 in-depth interviews with warehouse employees, drawn from an ongoing data collection project at a global logistics company (data collection started in 2017 and is ongoing). Participants occupied diverse roles within warehouse workplace, from frontline workers to line managers. The interviews employed a semi-structured format, designed to balance consistency across interviews with the flexibility to capture individual narratives (Kvale, Brinkmann, 2009). Each session began with an unstructured segment, inviting participants to share their personal background, employment trajectory, and reflections on everyday work life. The structured portion used open-ended questions guided

by key themes such as technological surveillance, monotony, managerial relationships, performance monitoring, autonomy, skill development, and perceptions of improvement opportunities. This dual structure aligns with best practices in qualitative interviewing, which emphasize both narrative openness and thematic depth (Guest, Namey, Mitchell, 2013).

The data collected was transcribed and analyzed using MAXQDA, a software tool tailored for qualitative data analysis. Coding followed both deductive and inductive strategies. Predefined codes reflected central research themes, while open coding allowed emergent insights to surface from the interview data. The iterative coding process helped identify patterns, contradictions, and recurring narratives across the dataset. The use of qualitative data analysis software facilitated systematic handling of large amounts of textual data and supported analytical rigor (Silver, Lewins, 2014). This coding framework was refined through ongoing analytical memo-writing and team discussions, in line with grounded theory techniques adapted for thematic analysis (Charmaz, 2014). The combination of software-assisted analysis and collaborative interpretation ensured methodological transparency and depth in capturing the complexity of warehouse workers' experiences.

To supplement the interviews and enhance contextual understanding, multiple secondary sources were analyzed. These included digital ethnography of online worker forums, media articles on warehouse labor, and relevant academic and industry publications. This triangulation strategy strengthened the study's validity by situating interview data within broader discourses and representations of warehouse work (Denzin, 2012). Online forums offered spontaneous, anonymized expressions of worker sentiment, while news media and academic studies provided institutional and macro-level context. Ethical considerations were central to the research design. All participants provided informed consent, and data was anonymized during analysis. This comprehensive and ethically grounded methodology enabled a rich and nuanced understanding of how workers interpret and navigate conditions in digitally managed warehouses, and how themes of improvement, participation, and resistance emerge from lived experience.

5. Findings

Efficiency Aspirations and Floor-Level Realities

In the context of warehouse operations, workers' experiences with process improvements reveal a recurring tension between the official narratives of efficiency and the grounded knowledge of everyday work. While both managers and employees ostensibly pursue greater efficiency, they do so from divergent starting points. Workers tend to approach improvements through the lens of practicality and workflow continuity, while management relies heavily on

predefined KPIs and performance targets. As a result, many efficiency initiatives are perceived by workers as overly abstract or out of touch. This disjuncture is vividly illustrated by Worker #12, who recounted a table modification implemented to save a second per task—an idea that disregarded differences in handedness and forced unnecessary adaptation. What management framed as innovation, workers experienced as disruption. This story underscores how small, seemingly benign changes can symbolize a broader misalignment between top-down efficiency narratives and the embodied expertise of workers.

The overreliance on metrics further complicates this dynamic. For management, efficiency is tracked through dashboards and compliance indicators, which become both the measure and the goal. Worker #19, a maintenance manager, explained the pressure to maintain 98% floor availability and the imperative to justify any deviation. While metrics provide structure, they can also distort priorities—leading to situations where meeting the metric overshadows meaningful improvements. Workers increasingly perceive that the point is not to enhance operations, but to protect appearances. These narratives align with broader critiques of reactivity in metric-driven organizations, where success becomes synonymous with keeping the numbers "green", regardless of real-world conditions or consequences. As such, metrics become a substitute for dialogue, crowding out more participatory or adaptive approaches to change.

Symbolic participation emerged as another critical theme. Workers initially engaged with improvement schemes, motivated by the desire to contribute or gain recognition. However, when only superficial suggestions were taken seriously, many began to view the process as performative. Worker #7 described how genuine efforts to suggest improvements were met with indifference, while trivial ideas were praised—fueling a sense that the point was not to improve processes but to manufacture a sense of involvement. These experiences exemplify what researchers have called the ritualization of voice—where workers are invited to participate but excluded from meaningful influence. This performative engagement, while perhaps well-intentioned, erodes trust and fosters disengagement over time. It reduces participation to a checkbox activity, devoid of reciprocity or outcome.

Compounding this frustration is the lack of resources allocated to support innovation. Worker #24, a team leader, described being tasked with generating improvement projects under strict cost constraints: "create something out of nothing." The contradiction here is stark—while the organization rhetorically celebrates innovation, it structurally inhibits it by withholding time, money, and authority. This dynamic exemplifies how budgetary logic can undermine participative intent. Middle managers, caught between upward demands for innovation and downward constraints on resources, struggle to deliver meaningful change. The result is a culture of frustrated creativity, where both initiative and follow-through are throttled. Workers internalize the message that their ideas are welcome only if they cost nothing and align with pre-existing expectations—a narrow and demotivating frame.

Finally, many workers expressed a broader skepticism toward the logic of workplace improvements as currently practiced. While they acknowledged the importance of refining workflows and enhancing performance, they often experienced improvement programs as intrusive or misaligned with their needs. Worker #27 explained how suggestions were often reduced to minor aesthetic changes—like relocating trash bins or placing flowers in the cafeteria—while more impactful ideas were ignored. Such examples highlight a managerial preference for visible, low-risk interventions that demonstrate action without disrupting the system. This superficiality reinforces a perception that improvement efforts serve organizational optics more than operational effectiveness. Workers are left questioning the sincerity and value of participatory mechanisms that consistently sideline their expertise. This calls into question the very meaning of improvement in digital warehouses: is it about better work, or about better performance on paper?

Taken together, these accounts depict a work environment where the drive for efficiency is both omnipresent and unevenly distributed—celebrated as a collective goal but managed through hierarchical, often exclusionary, systems. Workers are eager to contribute, yet repeatedly encounter procedural, cultural, and material barriers that limit their influence. Instead of unlocking innovation from below, many improvement programs risk alienating the very actors they are meant to empower. The findings suggest a need to reframe participation not as a tool for compliance or appearance, but as a process of genuine collaboration rooted in mutual trust and practical insight.

Recognition and the Realities of Participation

The desire for recognition emerged as a central theme in workers' experiences with process improvement schemes. For many, participation in improvement initiatives was initially motivated by the hope of making a meaningful contribution and gaining some form of acknowledgment, whether symbolic or material. However, several workers described how this hope gave way to frustration when they realized their efforts were met with indifference or, worse, perceived as irrelevant. Worker #14, a male packer, lamented, "I came up with something to make the system more efficient, but got nothing for it. In contrast, a colleague who worked in a patent office said that for every new idea, you'd get a patent and get paid for it. Here, you improve the system, and you receive no bonus, nothing". This quote reflects more than dissatisfaction with missing rewards—it highlights a perceived moral imbalance between input and recognition. Workers felt that their intellectual contributions were being appropriated by the organization without any form of reciprocation.

These experiences foster a sense of symbolic exclusion. Although management encourages employees to propose ideas, the absence of reward mechanisms—financial, professional, or reputational—leads workers to question the authenticity of these programs. The contrast between workers' expectations and organizational practices becomes especially salient when

compared with other industries or prior experiences. The disappointment in the lack of tangible outcomes undermines motivation and contributes to a broader skepticism about the company's commitment to participative values. This disconnect fuels perceptions that improvement schemes serve more as public relations exercises than meaningful innovation strategies.

Several workers described the suggestion process as resembling an internal competition—one that increasingly felt performative and disconnected from operational needs. Worker #9 shared, "There was this internal competition for ideas. Managers seemed desperate for any suggestions, even if they were bizarre and made our jobs more complicated". Rather than promoting thoughtful innovation, this environment often prioritized volume over quality. The sense that managers were more concerned with appearances than actual results delegitimized the process. When participation is tied to optics rather than outcome, workers understandably lose faith in the system. This dynamic reinforces a growing theme in the interviews: the elevation of engagement over effectiveness. What should be a system for soliciting practical improvements becomes, instead, a bureaucratic exercise in visibility.

Recognition within these programs was often viewed through a social lens—closely tied to how workers positioned themselves within managerial relationships. For instance, Worker #21 noted, "Some people constantly suggested odd ideas to improve work. Maybe it was a way to curry favor with their manager, to avoid physically demanding tasks for more responsible ones. But in the end, we were all paid the same". This statement offers a window into how workers interpret the motivations behind participation—not just as creative engagement, but as strategic self-positioning. This insight complicates assumptions about employee involvement as purely intrinsic. Workers are aware of the informal economies of favor, and how symbolic participation might be used to gain recognition or avoid undesirable tasks. However, the flattening effect of standardized pay—regardless of contribution—ultimately erodes the motivational basis for sustained engagement.

The perceived superficiality of improvement initiatives further eroded workers' trust. Worker #26 remarked, "Initially, I was really engaged, suggesting many ideas. But it turned out that only trivial ones were considered. It seemed more about involving us in the company's actions rather than making real changes. I understand it's a corporation, but it wasn't truly about improving processes". This account underscores a recurring pattern: workers engage enthusiastically at first, but lose interest when they realize their meaningful input is systematically sidelined. Over time, suggestion schemes risk becoming rituals of involvement—designed to signal openness without actually challenging organizational routines. These insights align with critiques of "participation without power", where the structure exists, but the substance is missing.

Across the narratives, there is a consistent theme of disillusionment with the disconnect between idea generation and implementation. Workers perceive a culture that values minor, visible contributions over significant, systemic insights. The absence of formal recognition mechanisms—bonuses, advancement, or even verbal acknowledgment—contributes to

a climate where participation is reduced to an unpaid, unrecognized labor of engagement. As the quotes suggest, this mismatch between the value of workers' knowledge and the organization's willingness to reward it leads to a decline in trust and long-term participation. In the absence of a credible feedback loop, suggestion systems lose their legitimacy, and workers begin to treat them as symbolic rather than substantive.

Ultimately, these findings suggest that recognition is not merely an accessory to participative management—it is its foundation. Without recognition, participation can become extractive: drawing on workers' ideas without acknowledging or rewarding their contributions. In digital warehouses—where physical labor is tightly controlled and creative input is one of the few remaining avenues for autonomy—the denial of recognition undermines both morale and innovation. If organizations genuinely seek to empower workers, they must create systems that acknowledge contribution, distribute credit, and offer tangible benefits. Otherwise, participation becomes an empty gesture, and workers—initially willing to contribute—withdraw from processes they perceive as inauthentic or exploitative.

Navigating Constraints in Implementing Improvements

A recurring theme in workers' accounts is the stark disconnect between the ideals of organizational change and the realities of implementing improvements on the warehouse floor. While employees often enter suggestion systems with enthusiasm, their experiences reveal that many ideas fail to move beyond the initial point of contact. Worker #6, a female employee, recalled, "I had lots of ideas to make things easier, but when I went to the leader, I was told, 'We get guidelines from the States; nothing changes here'. When I approached the manager, it was either 'No time' or 'Write it down'. The only person who listened was Ania, but then she left". This quote captures the systemic rigidity and hierarchical filtering that workers encounter, where suggestions are not only deprioritized but actively deflected. The result is a climate of discouragement in which employees feel that their voice has little influence beyond formalities.

This sentiment is not isolated. Several accounts illustrate how decision-making authority remains concentrated at higher levels, limiting the possibility of grassroots innovation. Worker #18, an instructor, described the challenge of aligning top-down directives with on-the-ground realities: "I had to explain to workers why they had to do something that made no sense. Decisions were top-down, and those at the top didn't see how their decisions affected morale". These observations reveal a structural blind spot in the implementation process, where decisions appear disconnected from their consequences. Workers are not only excluded from contributing to change but often placed in the awkward position of justifying policies they themselves find unhelpful or even counterproductive. This dynamic reinforces vertical divides and limits the adaptive capacity of the organization.

The emphasis on small, visually apparent improvements adds to this frustration. Workers frequently cited instances of low-impact changes that were celebrated internally, despite having little effect on daily work. Worker #15 noted, "Trivial things, like moving a trash can closer, were implemented. It's ironic because when you handle so many packages, every small improvement matters, but larger, more impactful changes are overlooked". These remarks highlight a culture where visibility seems to outweigh utility. Managers may favor changes that are easy to showcase—even if they offer marginal operational value—over more ambitious reforms that require coordination, investment, or risk.

This preference for visible but superficial changes was further underscored by Worker #3: "It was about small things, like adding flowers in the cafeteria. Real changes that could significantly impact the process were ignored". In these narratives, improvement initiatives appear to function more as signals of responsiveness than engines of transformation. When employees see minor modifications—such as hanging a mirror or relocating objects—prioritized over meaningful process redesigns, they interpret the improvement agenda as largely symbolic. The result is a pervasive sense of futility, where worker creativity is devalued and the promise of collaboration becomes hollow.

Taken together, these insights suggest that the implementation of improvement programs in warehouse environments often falls short of their stated goals. Workers are not resistant to change—in fact, they demonstrate a strong willingness to contribute—but their suggestions frequently encounter institutional barriers, whether bureaucratic, hierarchical, or cultural. Instead of acting as a mechanism for innovation, the improvement process is perceived as performative and disconnected, reinforcing existing power dynamics rather than redistributing them. To move beyond this impasse, organizations must re-evaluate not only how they solicit worker input, but how they translate it into action.

6. Discussion and conclusions

The findings from this study offer a critical contribution to debates surrounding participative management, algorithmic governance, and employee-driven innovation within digital warehousing environments. While participative management has long been heralded as a pathway to innovation and engagement (Lawler, 1986; Hyman, Mason, 1995; Wilkinson et al., 2010), our research reveals a significant gap between its rhetorical appeal and its operational reality. Workers in the studied warehouses report experiences where their suggestions are either ignored, trivialized, or constrained by broader organizational imperatives such as cost minimization and metric compliance. This disconnect reflects what scholars have described as the symbolic use of participation (Collinson, 2003; Busck et al., 2010), where involvement exists in form but not in substance. Our findings show how digital

infrastructures—originally designed to enhance efficiency—may also serve to filter out complexity, constrain voice, and reduce opportunities for worker discretion (Moore, 2017; Kellogg et al., 2020).

The data also underscore a fundamental tension in the implementation of improvement initiatives under algorithmic management. As seen in the literature on digital Taylorism and workforce quantification (Fleming, 2019; Fuchs et al., 2022; Liu, 2022), digital systems often promote rigid standards of efficiency that marginalize experiential and tacit forms of worker knowledge. The prioritization of metrics over meaning reflects what Espeland and Sauder (2007) call "reactivity", where people begin to optimize for the measure rather than the mission. In our case, workers describe how seemingly arbitrary changes—designed to shave seconds off a task—undermine both practical efficacy and morale. These insights resonate with the critique that performance management regimes often displace intrinsic motivation with externally imposed targets, eroding trust and engagement (Deci, Ryan, 2000; Kellogg, 2011).

Importantly, the workers' accounts highlight that participation is not merely a managerial tool for generating process efficiencies—it is also about recognition and respect (Harrison, Freeman, 2004; Cloke, Goldsmith, 2002). Our findings show that workers often engage with improvement schemes in the hope of being acknowledged, rewarded, or seen as contributors. When their suggestions are ignored or only superficial ideas are adopted, employees experience this as a form of disillusionment and symbolic violence (Bourdieu, 1991). These insights support the argument that participatory mechanisms must be embedded in a broader culture of respect, mutual learning, and shared purpose (Marchington, Suter, 2008; Galeazzo, Furlan, 2021). Without this cultural infrastructure, participation risks becoming extractive—drawing on workers' insights without providing meaningful feedback, reward, or influence over outcomes.

Our findings also extend the literature on resistance and misalignment in improvement cultures. While continuous improvement frameworks (e.g., Lean or Kaizen) often assume alignment between worker insight and managerial goals (Liker, 2004; Womack, Jones, 1996), our study shows that this alignment cannot be taken for granted in digitally mediated workplaces. Even if companies enable workers to contribute to the operations, aligning with Kaizen or similar philosophical imperatives, it does not necessarily mean that workers are genuinely involved in shaping business decisions. Our study offers an original example of how such methods can fail and it may be contrasted with numerous examples of meaningful employee participation (see, for instance, works of Levin, 2006; Kalleberg et al., 2009; Huang et al., 2016) Workers may comply with suggestion schemes or improvement drives not out of genuine belief in their efficacy, but to curry favor, gain recognition, or reduce physical strain. Such dynamics complicate normative accounts of participative management and call for more critical engagement with the lived realities of algorithmic workplaces. Scholars have argued that digitalization offers potential for new forms of participation through technologies like IoT and AI (Berg, 2016; Drahokoupil, Vandaele, 2021), but our data caution that without

institutional and cultural support, these technologies may reproduce existing hierarchies rather than democratize decision-making.

Theoretically, this study contributes to a more grounded understanding of the constraints and contradictions of worker-led improvement in the era of digital capitalism. It engages with labor process theory (Thompson, 2003; Braverman, 1974) by showing how control is reasserted through data and metrics, even as the rhetoric of participation persists. It also aligns with critical perspectives on human resource management that question the instrumentalization of employee voice (Legge, 2005; Dundon et al., 2004). Methodologically, it highlights the value of interpretive and ethnographic approaches for capturing how workers interpret and navigate participatory regimes that may be experienced as both empowering and alienating.

In sum, this research challenges optimistic portrayals of participative management by showing how, in the context of digital warehousing, participation is often bounded by systemic constraints that limit its transformative potential. The presence of improvement programs does not guarantee their effectiveness—particularly when the logic of cost-efficiency and algorithmic management overshadows the relational, cultural, and ethical dimensions of participation. Future research should examine how new technological systems might be redesigned or governed to support more genuine forms of worker inclusion and innovation, rather than merely extending managerial control under the guise of engagement.

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