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Human Resource Management in Free Trade Zones: A Narrative Literature Review

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ABSTRACT

Free trade zones (FTZs), including export processing zones, special economic zones, free ports, and related customs regimes, are widely used to attract foreign direct investment, promote exports, and generate employment. Their macroeconomic performance, however, depends partly on how firms and zone institutions recruit, protect, develop, and retain workers. This article presents a narrative review of human resource management (HRM) in FTZs. It integrates peer-reviewed studies with reports and legal instruments issued by international organisations and public authorities, with the literature updated through August 2026. The synthesis identifies five recurring themes: recruitment and labour flexibility; industrial relations and the liaison role of HR managers; wages, working conditions, and employee well-being; competency development, talent management, and human capital; and sustainable HRM in international trade governance. The evidence indicates a gradual, uneven transition from first-generation zones organised around labour-intensive production and short-term cost control to newer zones that combine trade facilitation with services, innovation, institutional experimentation, and human-capital development. This transition does not occur automatically. Technology spillovers and skill upgrading depend on local absorptive capacity, credible labour institutions, firm-level HR practices, and coordination among government, education providers, employers, and worker representatives. The Indonesian experience in Batam, Bintan, and Karimun illustrates these interdependencies: physical incentives and regulatory privileges alone have not guaranteed productivity upgrading or strong workforce capabilities. The review contributes an HRM-centred interpretation of zone development and proposes a research agenda that connects firm-level practices with zone governance, labour rights, and global supply-chain accountability.

1. INTRODUCTION

Zone-based economic policies have become a prominent feature of industrialization and investment promotion. Governments designate geographically bounded areas in which customs procedures, taxes, infrastructure provision, investment rules, or administrative processes differ from those applied in the rest of the national territory. Although the labels vary—free trade zone (FTZ), export processing zone (EPZ), special economic zone (SEZ), free port, industrial park, or bonded zone—the common policy objective is to reduce constraints on trade-oriented production and make a location more attractive to investors (Foreign Investment Advisory Service [FIAS], 2008; United Nations Conference on Trade and Development [UNCTAD], 2019; Zeng, 2015). The distinctions among these instruments matter. EPZs have typically concentrated on export manufacturing, whereas many contemporary SEZs and pilot FTZs also cover services, finance, logistics, innovation, and institutional reform (UNCTAD, 2023; Zeng, 2021).

The economic rationale for zones is well established, but their results are heterogeneous. Studies of China associate zone policies with investment, industrial agglomeration, and local economic activity, while also showing that design, location, and implementation shape the magnitude of the gains (Lu et al., 2019; Wang, 2013). Cross-country evidence similarly suggests that market access, connectivity, institutional capability, and links with the domestic economy are more decisive than fiscal incentives alone (Farole, 2011; Frick et al., 2019). Poorly governed zones can remain enclaves, displace activity, or produce benefits

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that do not justify public costs (FIAS, 2008; Jayanthakumaran, 2003; Moberg, 2015). Consequently, employment creation cannot be treated as a sufficient measure of developmental success.

Human resource management is central to this evaluation yet remains less visible than investment, exports, and infrastructure in much of the zone literature. Firms located in trade-oriented zones operate within global value chains in which lead firms coordinate quality, price, and delivery requirements across organisational and national boundaries (Gereffi et al., 2005). These commercial pressures influence staffing levels, contract duration, overtime, performance management, and remuneration. At the same time, host governments expect foreign investment to generate learning and technology spillovers, which require workers and local firms to possess the capacity to identify, assimilate, and apply new knowledge (Blomström & Kokko, 1998; Cohen & Levinthal, 1990). HRM therefore connects two potentially competing objectives: immediate production flexibility and long-term capability formation.

Labour institutions add another layer of complexity. EPZs have historically offered large numbers of formal manufacturing jobs, often to young women, but the quality and additionality of those jobs vary across countries and sectors (Cirera & Lakshman, 2017; Kabeer & Mahmud, 2004). Weak labour inspection, restrictions on collective representation, and purchasing practices that transfer commercial risk to suppliers can intensify pressure on workers and local HR functions (Anner, 2020; International Labour Organization [ILO], 2017a). HR managers may consequently be expected to deliver production targets, comply with national law and buyer codes, and mediate employee grievances at the same time (O'Donnell et al., 2019). This institutional position makes HRM in zones more than an internal administrative function.

The contemporary transformation of zone policy strengthens the case for an HRM-focused review. China's pilot FTZs, for example, use trade liberalization as part of a broader programme of service-sector opening, regulatory experimentation, and skill development (Meng & Zeng, 2019; UNCTAD, 2023). Empirical evidence also indicates that pilot FTZs can raise local human-capital levels, although the effect emerges with a lag and varies across cities (Xie et al., 2023). In parallel, sustainable HRM scholarship increasingly evaluates organisational performance in relation to employee well-being, societal legitimacy, and environmental and social responsibilities rather than financial outcomes alone (Aust et al., 2020; Kramar, 2014; Stahl et al., 2020). Labour provisions in trade agreements and corporate due-diligence regimes further connect workplace practices to international economic governance.

Against this background, the article has three objectives. First, it maps the principal themes in research on HRM and labour in FTZs and related zone regimes. Second, it explains the uneven shift from cost-centred HRM in labour-intensive zones toward capability-centred and sustainability-oriented HRM in newer zones. Third, it identifies research gaps and practical implications, with particular attention to Batam, Bintan, and Karimun (BBK) in Indonesia. The review asks: What HRM problems recur across zone contexts? Which institutional and organisational conditions support workforce upgrading? How can HRM contribute to zone competitiveness without weakening labour rights and employee well-being?

2. RESEARCH METHOD

This This study uses a narrative literature review. Narrative reviews are appropriate when a research problem crosses disciplinary boundaries and when the relevant evidence includes different methods, units of analysis, and document types (Grant & Booth, 2009). Unlike a systematic review designed to estimate a narrowly defined effect, the present review seeks to connect research in HRM, industrial relations, development economics, global value chains, international economic law, and public policy. The approach follows Snyder's (2019) recommendation that integrative reviews make their purpose, search logic, selection criteria, and analytical procedure explicit even when statistical aggregation is neither possible nor appropriate.

Searches were conducted and updated through August 2026 using Scopus, Web of Science, ScienceDirect, Emerald Insight, Wiley Online Library, and publisher platforms. Google Scholar and reference chaining were used for supplementary discovery and verification. Institutional sources were retrieved from the ILO, UNCTAD, the World Bank, the Organisation for Economic Co-operation and Development (OECD), the Association of Southeast Asian Nations (ASEAN), the Office of the United States Trade Representative, and EUR-Lex. Search combinations included "human resource management," "free trade zone," "export processing zone," "special economic zone," "bonded zone," "industrial relations," "labour conditions," "talent management," "human capital," "skills development," "sustainable HRM," "Batam," "Bintan," and "Karimun." Indonesian equivalents were used when examining the national context.

Sources were included when they met at least one of four substantive criteria: they examined HRM or employment practices within a zone; evaluated wages, labour conditions, worker representation, skills, or firm capabilities in zone settings; explained the institutional design and developmental performance of zones in ways relevant to HRM; or established a conceptual or regulatory connection between HRM, global value chains, and trade governance. Peer-reviewed research and official documents were prioritised. Seminal works published before the most recent decade were retained when they supplied foundational concepts, established historical patterns, or remained central to interpreting human-capital and labour outcomes. Geographical coverage included South and Southeast Asia, China, and comparative or global studies.

The selected materials were read comparatively and coded around recurring HRM problems, organisational responses, institutional conditions, and outcomes. The categories were consolidated into five themes: (1) recruitment and labour flexibility; (2) industrial relations and HR liaison work; (3) wages, working conditions, and well-being; (4) competency development, talent management, and human capital; and (5) sustainable HRM in trade governance. Evidence concerning BBK was then interpreted against this thematic framework. Because terminology, zone mandates, and outcome measures differ substantially across studies, the synthesis emphasises convergent patterns and qualified contrasts rather than pooled causal estimates. The review is interpretive rather than exhaustive; it may underrepresent non-English publications and firm-level practices that are not publicly documented.

3. CONCEPTUAL FRAMEWORK: CONNECTING ZONE DESIGN AND HRM

Zone heterogeneity and institutional embeddedness

FTZ is used in this article as an umbrella term while preserving distinctions among specific regimes. Traditional free ports and commercial FTZs primarily facilitate the duty-free storage and movement of goods. EPZs generally support manufacturing for export, whereas broader SEZs may combine industrial production, services, residential functions, infrastructure, and differentiated regulation (FIAS, 2008; UNCTAD, 2019). Bonded zones can apply customs privileges at the firm or estate level without reproducing every feature of a geographically comprehensive SEZ. ASEAN guidance likewise treats zone development as an institutional package involving strategy, governance, connectivity, investment facilitation, and links to the domestic economy (ASEAN Secretariat, 2016; ASEAN Secretariat & UNCTAD, 2017).

These differences have direct HRM consequences. A garment EPZ organised around standardised, labour-intensive production requires large-scale recruitment and close production control. A logistics, financial-services, or innovation-oriented zone competes more heavily for professional, technical, digital, and managerial talent. Zone rules can also alter the enforcement environment in which HR decisions are made. Accordingly, a zone's legal designation does not determine a single HRM model; its sectoral composition, labour institutions, investor strategies, and administrative capability mediate the relationship.

Cost pressure, labour institutions, and capability formation

Three mechanisms organize the review. The first is cost and delivery pressure transmitted through global value chains. Lead firms can coordinate production without owning suppliers, creating strong incentives for rapid adjustment in employment and working time (Gereffi et al., 2005). When purchasing prices and lead times are unrealistic, suppliers may pass risk to workers through temporary contracts, overtime, work intensification, or suppressed wages (Anner, 2020). Local HR managers implement these adjustments and absorb the resulting tensions.

The second mechanism is labour regulation and worker voice. Statutory coverage is insufficient when inspection is weak, collective representation is constrained, or zone authorities prioritise uninterrupted production over credible enforcement (ILO, 2017a; Milberg & Amengual, 2008). Conversely, effective worker-management dialogue can identify operational problems, reduce conflict, and improve the legitimacy of workplace decisions. HRM outcomes are therefore co-produced by firms, labour administrations, zone authorities, trade unions or worker organisations, and international buyers.

The third mechanism is capability formation. Foreign investment generates knowledge spillovers only when domestic firms and workers can absorb them and when investors create meaningful channels for learning (Blomström & Kokko, 1998; Meyer & Sinani, 2009). Education, prior knowledge, job design, training, internal mobility, supplier development, and inter-firm networks all influence this process. Strategic HRM research similarly argues that human capital creates sustained value when skills are combined with systems that enable employees to deploy and renew their knowledge (Delery & Roumpi, 2017). This perspective shifts attention from the number of jobs in a zone to the quality, transferability, and developmental trajectory of those jobs.

Table 1 summarizes how the five themes connect first-generation patterns with emerging directions. The categories are analytical tendencies rather than a strict chronology; cost control and capability development can coexist within the same zone.

Table 1.*Thematic Synthesis of HRM Issues in Free Trade Zones*

Theme	Recurring tension	Emerging direction
Recruitment and flexibility	Rapid staffing and variable orders versus employment security and retention	Workforce planning, fair contracting, inclusive recruitment, and skills-based internal mobility
Industrial relations	Production continuity and managerial control versus worker voice and collective rights	Credible grievance systems, social dialogue, independent inspection, and HR as an accountable mediator
Wages and well-being	Short-term labour-cost targets versus decent work, safety, and sustainable performance	Living-condition awareness, preventive safety, psychosocial support, and buyer-supplier responsibility
Competencies and talent	Immediate task proficiency versus local learning and technology absorption	Employer-education partnerships, structured training, career pathways, and global/local talent integration
Sustainable HRM and trade governance	Formal compliance versus responsibility across supply chains	Due diligence, auditable HR data, remediation, stakeholder engagement, and long-term human sustainability

4. RESULTS AND DISCUSSION

Recruitment and labour flexibility

Large-scale recruitment is one of the most visible contributions of labour-intensive zones. Historical ILO mapping documented the rapid expansion of EPZ employment and the strong concentration of workers in export manufacturing (Boyenge, 2007). The employment effect, however, should be interpreted carefully. Cirera and Lakshman's (2017) systematic review found limited evidence that every zone job is additional to employment that would otherwise have existed. Workers may move from agriculture, informal activities, or factories outside the zone, so gross job counts do not reveal net employment creation or job quality.

Recruitment patterns also have a pronounced gender dimension. Garment and light-manufacturing employers have often recruited young women on the assumption that they are suited to repetitive work, less likely to organize, or more compliant with production discipline. Research on Bangladeshi women workers shows that export employment can expand income and bargaining opportunities while remaining embedded in unequal household and labour-market relations (Kabeer & Mahmud, 2004). A responsible HRM analysis must therefore avoid two simplifications: zone employment is neither inherently emancipatory nor reducible to exploitation. Outcomes depend on pay, safety, mobility, voice, and the alternatives available to workers.

Flexibility is typically achieved through fixed-term contracts, probationary hiring, subcontracting, fluctuating shifts, and overtime during order peaks. These arrangements can help firms adjust to volatile demand, but excessive reliance on numerical flexibility weakens retention and organisational learning. The problem is amplified when lead firms compress prices and delivery schedules. Anner (2020) demonstrates how purchasing practices in the garment supply chain can squeeze suppliers' capacity to meet labour standards even when buyers formally adopt codes of conduct. HR departments then manage instability generated outside the employment relationship but experienced inside the workplace.

Evidence from the Dhaka Export Processing Zone indicates that bundles of recruitment, selection, training, appraisal, and compensation practices are associated with improved firm performance (Islam & Siengthai, 2010). This finding supports an integrated rather than transactional approach. Recruitment quality depends on whether new employees receive realistic job information, safe induction, competent supervision, and opportunities to learn. High turnover may appear compatible with low-skill production in the short term, yet it raises repeated recruitment and training costs and prevents tacit knowledge from accumulating.

For zone firms, the strategic issue is not whether flexibility should disappear but how risk is distributed. Predictable scheduling, transparent criteria for contract renewal, limits on excessive overtime, non-discriminatory recruitment, portable skill certification, and internal pathways from operator to technician or supervisor can reconcile operational adjustment with human-capital development. Zone authorities can support these practices by monitoring labour intermediaries, publishing workforce indicators, coordinating transport and housing services, and facilitating access to accredited training. Such measures convert labour availability from a static cost advantage into a renewable capability.

Industrial relations and HR managers as institutional liaisons

Industrial relations are a persistent weakness in many EPZs. The ILO (2017a) identifies freedom of association, collective bargaining, labour inspection, and effective remedies as recurring concerns. Special regulatory arrangements have sometimes excluded zone workers from ordinary labour protections or created alternative representation structures with limited independence. Even where national law formally applies, enforcement can be diluted by unclear institutional mandates, restricted inspector access, or political concern that industrial conflict will deter investment (Milberg & Amengual, 2008).

The legal position of zones is not uniform. Cotula and Mouan (2021) show that labour governance in SEZs emerges from interaction among domestic law, unilateral zone rules, international labour standards, trade instruments, and transnational private regulation. This layered environment can generate protection gaps, but it also creates channels through which stronger norms diffuse. The practical question is whether workers can exercise rights without retaliation and obtain timely remediation, not merely whether a code or statute exists.

HR managers occupy the junction of these institutional demands. O'Donnell et al. (2019), drawing on interviews in Sri Lanka's Katunayake EPZ, describe HR managers as liaisons among workers, factory management, and external actors. They are expected to support employee welfare and resolve grievances while also protecting output, cost, and delivery targets. This dual mandate becomes especially difficult when production pressure originates from international buyers. Treating HR as a neutral messenger understates its power and responsibility: choices about grievance investigation, discipline, communication, and worker representation shape whether conflicts escalate or become sources of organisational learning.

Private compliance systems can supplement but not replace public enforcement and worker voice. Research on global supply chains suggests that sustained improvements are more likely when monitoring is combined with managerial commitment, problem-solving capacity, and institutions that make compliance operationally feasible (Locke et al., 2009). Audit-only models may identify visible breaches while missing intimidation, informal retaliation, or production systems that continually reproduce excessive overtime. The ILO's (2017b) framework for assessing labour provisions similarly emphasises implementation, monitoring, stakeholder participation, and institutional capacity rather than treaty language alone.

An accountable liaison role requires structural support. HR managers need clear authority to stop unsafe practices, protect confidential complaints, maintain accurate working-time and wage records, and escalate buyer-driven risks to senior management. Workers need independent representation and access to remedies beyond the line-management hierarchy. Zone authorities should clarify jurisdiction between investment-promotion bodies and labour inspectorates so that promotional objectives do not compromise enforcement. Mature industrial relations should be understood as productive infrastructure: credible dialogue reduces uncertainty, supports retention, and provides early warning of operational and social risk.

Wages, working conditions, and employee well-being

Evidence on zone wages and conditions is mixed, which cautions against universal claims. Cirera and Lakshman (2017) found that EPZ firms often pay wages equal to or higher than comparable firms outside zones, although results vary and wage comparisons do not capture working time, employment security, work intensity, or living costs. Their review also found inconclusive evidence on several non-wage outcomes, including occupational safety, unionization, and hours. A nominal wage premium may compensate for demanding shifts or may be eroded by transport, housing, or food costs around rapidly expanding industrial areas.

Decent-work deficits can persist alongside formal employment. ILO (2017a) evidence points to weak inspection, barriers to organizing, discrimination, and shortcomings in occupational safety and health in a number of zones. Commercial practices matter as well: suppliers facing last-minute order changes can respond with mandatory overtime or production acceleration. The causal chain therefore extends from buyer forecasting and procurement through factory planning to individual fatigue and injury risk (Anner, 2020). HR metrics limited to labour cost and absenteeism fail to identify the origin of these risks.

Employee well-being is also economically material. Pfeffer (2010) argues that organisations cannot be considered sustainable when their management practices damage human health. For zone firms, this principle extends beyond compliance to fatigue management, ergonomic design, respectful supervision, mental-health support, maternity protection, freedom from harassment, and access to safe transport. These factors influence turnover, quality, learning, and the reliability of production. The business case, however, should not displace the rights-based case: safe and dignified work remains an obligation even when a direct productivity effect is difficult to quantify.

Sustainable HRM provides a broader evaluative frame. Ceresia (2025) connects employee well-being, international labour standards, inclusion, cultural capability, and responsible remuneration to the governance of international trade. In a zone setting, this approach implies that HR decisions should be assessed across multiple time horizons and stakeholder groups. A low-cost staffing practice can improve a quarterly target while weakening future skill supply, community trust, or customer relationships. Conversely, investment in prevention and worker voice can create resilience that conventional accounting treats as an expense.

Practical improvement requires shared responsibility. Firms should integrate safety and well-being indicators into production planning and managerial appraisal. Buyers should align price, volume, and lead-time decisions with labour commitments. Zone authorities should ensure independent inspection, collect disaggregated data, and coordinate services such as transport, clinics, childcare, and emergency response. Worker organisations should participate in risk identification and remediation. The resulting model treats working conditions as an outcome of the zone ecosystem rather than the isolated choice of an HR department.

Competency development, talent management, and human capital

The developmental promise of FTZs rests partly on learning. Foreign investors may introduce technology, quality systems, managerial routines, supplier requirements, and access to international markets. Yet spillovers are conditional. Borensztein et al. (1998) found that the growth benefits of foreign direct investment depend on the host economy's stock of human capital. Research on multinational spillovers likewise shows that linkages and learning are not automatic and can differ with technology gaps, ownership strategies, competition, and local absorptive capacity (Blomström & Kokko, 1998; Meyer & Sinani, 2009). Cohen and Levinthal's (1990) concept of absorptive capacity explains why prior knowledge and continuous learning are necessary to recognise and use external knowledge.

This evidence changes how training should be evaluated. Short induction programmes can raise immediate task proficiency, but they do not necessarily create transferable technical or managerial capabilities. Developmental HRM requires structured curricula, supervised practice, recognised credentials, problem-solving assignments, career pathways, and opportunities for local employees to enter technical and leadership roles. Supplier-development programmes and mobility between multinational and domestic firms can extend learning beyond the boundaries of a single employer.

China's pilot FTZs illustrate a broader policy orientation. Xie et al. (2023), using data from 283 Chinese cities between 2000 and 2020, found that FTZ establishment increased local human-capital levels, with effects that took time to materialize. The result should not be read as proof that designation alone creates skills. Pilot FTZs are embedded in wider reforms involving services, government functions, finance, mobility, and institutional experimentation (Meng & Zeng, 2019; UNCTAD, 2023). Their human-capital effect is therefore likely to reflect complementary policy and agglomeration processes.

As zones diversify, talent management becomes more important. Global talent management concerns the systematic identification, development, deployment, and retention of individuals in positions that affect international competitiveness (Tarique & Schuler, 2010). The literature also cautions against reducing talent to a small elite; talent systems need a clear strategic rationale and should account for institutional and workforce differences across locations (Collings et al., 2015). In FTZs, this means balancing the attraction of expatriate or internationally mobile specialists with the development and progression of local employees.

The transition toward capability-centred HRM requires coordination beyond the firm. Zone authorities can convene employers, vocational institutions, universities, certification bodies, and worker representatives to anticipate occupational demand and design modular training. Firms can share non-proprietary laboratories, apprenticeships, and instructor development while retaining company-specific training. Public incentives can be tied to verifiable training quality, local career progression, and supplier learning rather than headcount alone. HR analytics should track completion, skill application, promotion, and retention, not merely training hours. These arrangements make human-capital upgrading an explicit zone outcome.

Sustainable HRM in international trade governance

Sustainable HRM broadens the purpose of the employment system. Kramar (2014) argues that HRM should be evaluated in relation to organisational, individual, and societal outcomes and should recognise the costs of consuming human and social resources. Ehnert et al. (2016) found that large companies' sustainability reporting addressed HR issues unevenly, revealing a gap between the strategic importance of employees and the transparency of organisational practice. Later frameworks emphasise the common good, multiple stakeholders, and HRM's capacity to influence corporate sustainability and social responsibility (Aust et al., 2020; Stahl et al., 2020).

This literature is directly relevant to FTZs because zones are nodes in cross-border production networks. Economic upgrading does not necessarily produce social upgrading; firms or workers can gain productivity without receiving better rights, security, or rewards (Barrientos et al., 2011). Sustainable HRM connects these trajectories by asking whether recruitment, performance management, reward, training, and employee relations reinforce decent work as production becomes more sophisticated. Ceresia (2025) further proposes that HR practices support international trade governance through human-rights implementation, sustainability competence, responsible remuneration, cultural intelligence, diversity and inclusion, and purpose-oriented talent acquisition.

Trade and due-diligence instruments create additional accountability channels. The United States–Mexico–Canada Agreement's Facility-Specific Rapid Response Labor Mechanism establishes a procedure for addressing denials of freedom of association and collective bargaining at covered facilities (Office of the United States Trade Representative, 2020). In the European Union, Directive (EU) 2024/1760 established a corporate sustainability due-diligence framework, and Directive (EU) 2026/470 subsequently amended its scope and timetable (European Parliament & Council of the European Union, 2024, 2026). These instruments differ in jurisdiction, coverage, remedies, and implementation schedule; they should not be treated as interchangeable or as universally applicable to all zone firms. Together, however, they illustrate a movement from voluntary commitments toward more formal expectations concerning adverse labour and human-rights impacts in operations and chains of activities.

For HR departments, this movement has practical consequences. Workforce records, working-time systems, wage data, grievance outcomes, union-relations practices, recruitment fees, contractor controls, and training evidence can become part of customer or regulatory due diligence. The objective should not be documentation for its own sake. Effective due diligence requires risk identification, meaningful stakeholder engagement, prevention, remediation, and verification. HR professionals need competence in labour standards, data governance, cross-cultural communication, supplier engagement, and remedy design, while legal, procurement, operations, and sustainability functions must share responsibility.

Zone authorities can facilitate collective solutions. Common due-diligence guidance, interoperable reporting, trusted grievance channels, supplier-development support, and transparent aggregate indicators can reduce duplication and improve credibility. At the same time, authorities should prevent private audits from becoming substitutes for public labour enforcement. A sustainable zone is one in which competitiveness derives increasingly from skills, reliability, innovation, and responsible governance rather than regulatory exceptions that shift costs to workers.

Indonesia: Batam, Bintan, and Karimun

Indonesia's BBK area is a strategically located zone complex near Singapore and major shipping routes. Its policy architecture combines free-trade and free-port arrangements with industrial estates, bonded facilities, and more recent SEZ initiatives. This layering reflects efforts to attract investment and strengthen logistics, manufacturing, and services, but it also creates coordination demands among national ministries, local governments, customs, zone authorities, infrastructure providers, and firms. OECD (2020) analysis of Indonesia's investment framework emphasises the importance of regulatory coherence, skills, infrastructure, and linkages if investment incentives are to support broader development.

Batam demonstrates why physical location and fiscal privileges are insufficient. Aritenang and Chandramidi (2020) did not find conclusive evidence that Batam's zone status itself improved firm productivity and growth, although industrial agglomeration was beneficial. Their findings redirect attention toward innovation, inter-firm cooperation, and the quality of government intervention. Evidence from Indonesian bonded zones is similarly cautious: Wicaksono and Mangunsong (2023) found only modest effects on output per worker, product variety, and exports. These studies do not establish that zone policy lacks value; rather, they show that designation and customs facilities do not automatically generate firm upgrading.

The HRM implication is substantial. BBK needs workforce capabilities aligned with advanced manufacturing, logistics, digital services, maintenance, engineering, and supervisory and managerial work. It also needs public-sector competence to coordinate permits, labour services, training provision, investment aftercare, and reliable data. ASEAN frameworks recommend strong governance, connectivity, strategic planning, domestic linkages, and collaboration across zones (ASEAN Secretariat, 2016; ASEAN Secretariat & UNCTAD, 2017). Human-capital institutions should be treated as part of this investment infrastructure.

A BBK workforce strategy could operate at three levels. At the firm level, employers should combine fair recruitment and labour relations with competency mapping, apprenticeships, technical certification, and local succession planning. At the zone level, authorities and industry associations should aggregate demand forecasts, share training facilities, coordinate school-to-work pathways, and monitor outcomes such as certification, promotion, retention, wage progression, safety, and worker voice. At the regional level, BBK institutions should connect education and supplier development with the changing sector mix and establish clear responsibility for labour inspection and grievance referral.

Institutional reform should avoid framing Batam as a simple transition from FTZ to SEZ. Different regimes and projects can coexist, and their effectiveness depends on mandate clarity and coordination. The central HRM question is whether each arrangement creates stable incentives for firms to invest in people and for public institutions to build transferable capabilities. If workforce policy remains secondary to land, tax, and licensing decisions, BBK risks attracting activities without deepening local knowledge. If skills and decent work are integrated into zone governance, proximity to regional markets can support a more durable path of upgrading.

5. SYNTHESIS AND RESEARCH GAPS

The literature reveals an uneven transition between two ideal types. First-generation zones are commonly associated with standardised, labour-intensive exports, abundant recruitment, numerical flexibility, and HR systems focused on attendance, discipline, output, and labour-cost control. Newer-generation zones extend the policy instrument toward services, logistics, innovation, institutional reform, and higher-skill activities. Their HR systems place greater weight on talent attraction, competency development, knowledge transfer, and sustainability. These types are not mutually exclusive. Advanced zones can contain precarious jobs, and traditional manufacturing zones can develop sophisticated training and social dialogue. The distinction is useful because it identifies the direction of strategic change rather than assigning a permanent label to a location.

Three propositions emerge from the synthesis. First, zone design influences HRM through sector selection, labour regulation, administrative arrangements, and incentives, but firm strategy mediates the outcome. Second, human-capital gains depend on complementary institutions: education quality, absorptive capacity, worker voice, supplier linkages, and credible public governance. Third, the external governance of supply chains increasingly enters the HR function through labour clauses, due diligence, buyer requirements, and sustainability reporting. HRM in zones should therefore be analysed simultaneously at the employee, firm, zone, and transnational levels.

The first research gap concerns Indonesia. Internationally visible research on BBK has concentrated more on investment, productivity, and institutional design than on recruitment systems, contract patterns, pay formation, training quality, employee voice, HR capability, or career mobility within firms. Mixed-method research could link establishment data with interviews involving employees, HR managers, unions, zone administrators, training providers, and buyers. This would reveal whether zone-level policy translates into workplace-level learning and decent work.

Second, comparative research should examine sector and zone-generation differences directly. Matched studies of labour-intensive manufacturing zones and service- or innovation-oriented zones could test how technology, buyer governance, occupational structure, and regulation affect HR systems. Longitudinal designs are particularly important because Xie et al. (2023) identify lagged human-capital effects and because institutional capability develops over time. Outcomes should include transferable skills, internal promotion, wage progression, turnover, worker voice, safety, and firm innovation rather than employment totals alone.

Third, sustainable HRM claims require empirical validation in zone settings. Research can test whether due-diligence systems alter purchasing practices, managerial incentives, grievance effectiveness, and remediation, or simply expand audit documentation. It should also investigate how costs are distributed among lead firms, suppliers, workers, and zone authorities. Comparative legal-institutional research would help explain why similar international standards produce different outcomes across jurisdictions.

Fourth, the HR function itself deserves closer study. O'Donnell et al. (2019) show the value of examining HR managers as institutional liaisons, but further work should analyse their authority, professional competence, ethical tensions, and relationships with operations, procurement, unions, and regulators. Research should distinguish symbolic participation from decision rights. It should also examine whether HR analytics improve accountability or create new risks through surveillance and weak data protection.

Finally, future reviews would benefit from a systematic protocol focused on specific outcomes once the evidence base becomes sufficiently comparable. The present narrative synthesis spans multiple zone types and disciplines and cannot estimate an average causal effect. Its contribution is to establish a coherent set of mechanisms and questions that can guide more focused systematic reviews and primary studies.

6. CONCLUSION AND RECOMMENDATIONS

HRM in free trade zones is shaped by the interaction of commercial pressure, labour institutions, firm strategy, human-capital systems, and transnational governance. Labour-intensive zones have created significant employment, but their HR practices have often prioritised short-term flexibility and production control. Newer zone models show a broader orientation toward services, innovation, talent, and institutional experimentation. The literature does not support an automatic progression from one model to the other. Skill upgrading and responsible employment require deliberate investment and credible institutions.

For policymakers and zone administrators, labour governance and human-capital development should be treated as core economic infrastructure. Independent inspection, effective worker voice, reliable grievance and remedy systems, demand-led training, recognised credentials, employer-education partnerships, and transparent workforce indicators should accompany customs and investment facilitation. Incentives can be linked to verified capability development and local career progression rather than employment counts alone.

For firms, HR strategy should integrate workforce planning, fair contracting, industrial relations, safety and well-being, competency development, and supply-chain due diligence. Senior management should give HR professionals sufficient authority to address production practices that create labour risks. Buyers and procurement functions must align commercial decisions with labour commitments, because supplier HR departments cannot independently resolve pressures embedded in price and lead-time structures.

For BBK, the priority is to connect zone governance with a regional workforce strategy. Institutions should coordinate occupational forecasting, technical and managerial training, apprenticeships, certification, labour inspection, and employer aftercare across overlapping zone regimes. The objective is not only to attract investment but to increase the capacity of local workers, firms, and public institutions to learn and upgrade.

In conclusion, a competitive FTZ should not rely primarily on low labour costs or regulatory exceptions. Its more durable advantage lies in productive skills, trustworthy industrial relations, organisational learning, and responsible integration into global value chains. Placing HRM at the centre of zone policy makes these conditions visible and provides a stronger basis for evaluating whether investment-led growth is both economically and socially sustainable.

7. ACKNOWLEDGE

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