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Sustainable human resource development in urban micro, small and medium enterprises: Strategic mapping of workforce capabilities

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Orientation: Micro, small and medium enterprises (MSMEs) are crucial engines of economic growth, yet their competitiveness in emerging economies is constrained by persistent structural and human resource development (HRD) challenges.

Research purpose: This study examines the HRD landscape of urban MSMEs in Yogyakarta, Indonesia, to develop a sustainable workforce development framework.

Motivation for the study: The research is motivated by the need to address persistent HRD issues, specifically owner-centric management, substantial training gaps and informal HR practices that hinder MSMEs' potential despite their significant economic role.

Research approach/design and method: A multimethod qualitative design was employed, involving 440 MSMEs. Data collection combined observations at 30 business sites, in-depth interviews with 30 owners, 12 focus group discussions and open-ended questionnaires. Data were analysed thematically.

Main findings: The analysis identified four critical HRD challenges: (1) owner-centric, familial structures impeding professionalisation; (2) substantial training gaps, with 66% of MSMEs never having formal training; (3) weak community affiliation, as over half are unaffiliated with business associations; and (4) a reliance on informal HR practices without standardisation.

Practical/managerial implications: The findings advocate for multilevel interventions: targeted training (micro level), cluster and mentorship development (meso level) and policy alignment with the Sustainable Development Goals and Indonesia's Vision 2045 (macro level).

Contribution/value-add: Theoretically, the study integrates the Resource-Based View, Knowledge-Based View and the Ability, Motivation, Opportunity framework. It proposes the 'Adaptive Tiered Grand Design', a phased HRD roadmap that contributes to the global discourse on sustainable MSME development in emerging economies.

Keywords: MSMEs; human resource management; human resource development; entrepreneurial capacity; training.

Introduction

Micro, small and medium enterprises (MSMEs) are widely acknowledged as engines of economic growth and resilience, particularly in developing economies. Globally, they represent approximately 90% of businesses and contribute to more than 50% of employment worldwide (World Bank, 2023), while their agility and reliance on local resources enable them to withstand economic shocks. In the Indonesian context, MSMEs account for more than 60% of the national gross domestic product (GDP) and absorb nearly 97% of the total labour force, with over 64 million units operating across the archipelago (Ministry of Cooperatives and SMEs, 2024). Despite their dominant role in the domestic economy, MSMEs contribute only approximately 15.7% to Indonesia's total exports, highlighting persistent structural challenges in global competitiveness and scalability (Bank Indonesia, 2024).

Although the importance of MSMEs in economic development is well established, their sustainability is undermined by persistent weaknesses in human resource management

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(HRM). Prior studies indicate that MSMEs are often characterised by limited managerial capabilities, low participation in formal training and a heavy reliance on owner-driven decision-making often described as 'one-man show' operations (Mohiya et al., 2020; Parast & Safari, 2022). These lead to ad hoc and unstructured strategies that undermine business continuity and long-term growth. Government programmes aimed at helping MSMEs 'upgrade' remain fragmented and frequently overlook the human resource dimension, which is essential for long-term competitiveness.

While prior research has explored MSMEs from the perspective of finance, innovation and technology adoption, less attention has been devoted to sustainable human resource (HR) development within MSMEs, particularly in developing country contexts (Burhan et al., 2023; Dang et al., 2018; Krishnan, 2019; Sugiyanto et al., 2020; Venugopal et al., 2020). Most HRM studies focus on large organisations, where formalised practices and professional HR structures exist, leaving a critical gap in understanding how MSMEs operating with limited resources can build human capital for sustainable growth (Abas et al., 2024; Anlesinya & Susomrith, 2020; Cardon & Stevens, 2004; Cooke et al., 2020; Nolan & Garavan, 2016). Moreover, empirical research that systematically maps workforce capabilities of MSMEs and translates them into actionable development frameworks is still scarce.

To address this gap, this study investigates HRM practices in urban MSMEs in Yogyakarta, Indonesia, through three specific objectives. Firstly, it examines workforce and business characteristics including entrepreneur age and business longevity to understand how these demographic factors influence organisational stability and HRM readiness. Secondly, it identifies training and skills gaps that hinder human capital development. Thirdly, it proposes a structured Grand Design Framework for sustainable human resource development (HRD) tailored to different MSME maturity levels. By doing so, the study extends theoretical discussions of workforce development beyond conventional large firm settings while offering evidence-based pathways for policymakers.

In this regard, strengthening HRD in MSMEs is not only a matter of enhancing firm-level competitiveness but also part of a broader national and global agenda. Effective HRD strategies contribute directly to the achievement of the United Nations' Sustainable Development Goals (SDGs), particularly Goal 8 on decent work and economic growth and Goal 9 on industry, innovation and infrastructure. Moreover, they support Indonesia's Vision 2045, which envisions inclusive, sustainable and innovation-driven growth. Framing HRD within these global and national priorities underscores the urgency of designing adaptive strategies that ensure MSMEs can evolve from vulnerable enterprises into resilient, competitive and sustainable drivers of development.

Literature review

Human resource management in micro, small and medium enterprises

The effectiveness of MSMEs is closely tied to their human resources; however, HRM practices in small enterprises are often informal and underdeveloped. Owners often perform multiple roles, from operations to workforce supervision, resulting in limited specialisation and weak succession planning (Galanaki & Zografou 2023). This contrasts with larger organisations, where HR systems provide structure and continuity. The absence of structured HR practices in MSMEs frequently translates into low productivity, limited innovation and high vulnerability to external shocks (Sungwa, 2025).

Sustainable human resource development

Sustainable HR development refers to building long-term workforce capabilities that balance organisational growth with adaptability and resilience (Anlesinya & Susomrith, 2020; Martini et al., 2023). In the MSME context, this involves providing employees with training, enhancing entrepreneurial motivation and fostering learning networks (Bai et al., 2016a). However, existing studies highlight that MSMEs rarely invest systematically in training because of financial constraints and a lack of awareness of its long-term benefits (Bai et al., 2016b). Consequently, their workforce remains less competitive compared to enterprises in formalised sectors (Ahmed, 2021; Kotey & Folker, 2007).

Theoretical perspectives

This study draws on three complementary theoretical perspectives. Firstly, the resource-based view (RBV) emphasises human capital as a critical intangible resource that can provide sustained competitive advantage when it is valuable, rare, inimitable and non-substitutable (Barney, 1991; Kraaijenbrink et al., 2010; Newbert, 2007). For MSMEs, HR capabilities are particularly decisive because they often lack access to financial and technological capital.

Secondly, the knowledge-based view (KBV) extends RBV by conceptualising knowledge and learning as the most strategic resources of the firm (Grant, 1996; Nonaka, 2009). The MSMEs' sustainability depends not only on access to resources but also on their ability to continuously learn, share knowledge and adapt to changing market conditions. Training and capacity-building programmes, therefore, serve as knowledge-transfer mechanisms essential to their survival.

Thirdly, the Ability, Motivation, Opportunity (AMO) framework provides a micro-foundational lens for HRM practices. According to AMO theory, organisational performance improves when employees are equipped with the ability (skills and training), motivation (incentives and entrepreneurial drive) and opportunity (supportive structures and networks) to contribute effectively (Appelbaum, 2000; Messersmith & Wales, 2013). This framework aligns well with the challenges of MSMEs, where limited resources demand targeted interventions that enhance each dimension of workforce potential (Harney & Alkhalaf, 2021).

By integrating these perspectives, this study positions HR development in MSMEs not merely as an operational issue but as a strategic imperative that determines enterprise sustainability. This theoretical grounding informs the proposed Grand Design Framework, which seeks to systematically strengthen HR capacity in small enterprises.

Research design

This study adopted an exploratory multimethod qualitative research design grounded in an interpretivist paradigm. To capture both the breadth and depth of HRM dynamics, a nested sampling strategy was employed. This approach allowed for a wide thematic mapping of 440 MSMEs while conducting deep-dive analysis through interviews and observations with a targeted sub-sample.

Sampling and participants

The study population consists of approximately 13 000 active MSMEs in Yogyakarta. A primary sample of 440 MSMEs was selected using convenience and snowball sampling. Each MSME was represented by one participant (the owner or manager) to ensure data consistency regarding high-level HRM decisions and business intent. The selection was based on the owners' willingness to provide detailed information and their active operational status.

Data collection

Data were collected using a multimethod strategy, combining primary and secondary sources.

Data primer

Data were collected through three primary qualitative instruments:

Open-ended questionnaires (*n* = 440): Distributed to the entire sample to collect qualitative demographic data and initial thematic insights into training experiences and community affiliation. This 'qualitative survey' achieved a 95% response rate, providing a robust foundation for pattern identification.

In-depth interviews and observations (*n* = 30): Semi-structured interviews were conducted with 30 MSME owners. Simultaneously, researchers conducted site visits at these 30 MSMEs to perform participatory observations of daily operations and team interactions between January 2024 and April 2024.

Focus group discussions and stakeholder interviews: Three focus group discussions (FGDs) (involving 8–12 participants each) and interviews with nine community leaders and three government officials were conducted to triangulate findings and refine the proposed Grand Design.

The 'missing' 368 participants (440 minus the 72 deep-dive participants) are integral to the study, as they provide the breadth of data necessary to ensure the Grand Design Framework is inclusive of various business sectors and stages of development (Table 1).

TABLE 1: Breakdown of research participants and scales (*N* = 440).

Enterprise category	Total units (participants)	Key data source	Significance to study
Micro enterprises	275	Open-ended questionnaire	Mapping basic HRD intent and survival strategies
Small Enterprises	137	Open-ended questionnaire	Identifying growth barriers and formalisation needs
Medium enterprises	28	Open-ended questionnaire	Analysing professionalisation and global readiness
Total primary sample	440	Capturing broad HRD landscape	Overall supporting research data
Deep-dive sub-sample	60	In-depth interviews and site visits	Providing lived experience and process validation
Stakeholder sub-sample	12	Focus group discussions (FGDs)	Validating framework feasibility with policy makers

HRD, human resource development.

Secondary data

Supplementary data were gathered from government agencies such as the Yogyakarta MSME Office, the Regional Development Planning Board (Bappeda) and the Central Bureau of Statistics (BPS), as well as from academic publications, research centres and media reports related to MSMEs in Yogyakarta.

Data analysis

Data analysis followed the interactive model by Miles and Huberman (1994), which involves iterative cycles of data reduction, data display and conclusion drawing or verification. To manage the multimethod nature of the study, the analysis was conducted as follows:

Data reduction and coding: All qualitative data comprising 418 retrieved open-ended questionnaires (95% response rate), transcripts from 30 interviews, notes from three FGDs, and 30 site observation records were systematically coded. We employed open coding to identify initial concepts from the broad sample (*n* = 440), followed by axial coding to link categories and selective coding to develop the four central HRD themes using the nuanced data from the deep-dive participants (*n* = 72).

Data display: The summarised findings were presented through narrative descriptions and visual models. Comparative matrices were used to contrast HRM practices across different enterprise scales, while the Grand Design Pyramid was developed to visualise the proposed phased HRD roadmap.

Triangulation and verification: To ensure credibility and reduce potential bias, triangulation was employed across all data sources. The broad patterns identified in the qualitative questionnaires were validated against the 'lived experiences' captured in interviews and the 'on-site realities' recorded during participatory observations at the 30 MSME locations.

Ethical considerations

Ethical clearance to conduct this study was obtained from the Sekolah Tinggi Pembangunan Masyarakat Desa 'APMD' Yogyakarta Research Ethics Committee (Ref. No. [538/I/U/2025]). The study adhered to established ethical standards. Informed consent was obtained from all participants, ensuring they were aware of the study's objectives, their rights (including the right to withdraw), and the use of their data. Confidentiality and anonymity were maintained by assigning pseudonyms and generalising identifiable information. All data were securely stored and accessible only to the research team.

Results

Demographic statistics

Data collected from the qualitative open-ended questionnaires involving 440 active MSMEs in Yogyakarta provided an initial thematic map of the HRD landscape. While the study is grounded in a qualitative paradigm, this broad initial survey was essential to identify general characteristics and patterns across various business scales and sectors before proceeding to deep-dive interviews.

Community affiliation

The results indicate that more than 50% of the MSME sample (212 out of 440) are not formally affiliated with any MSME community. Several MSMEs demonstrated multiple affiliations, such as the overlap between KaMU and Forkom (27 MSMEs) or Dekranas and Forkom (20 MSMEs). This lack of affiliation in over half of the sample provided a critical thematic foundation for the deep-dive interviews regarding the barriers to networking and external HRD support (Table 2).

Training experience

Most businesses in Yogyakarta City have not had formal training. Businesses that have participated in training are mostly members of communities. There are 292 MSMEs that have never participated in training out of the total sample collected (440 MSMEs), as shown in Figure 1.

Export and exhibition experience

Most businesses have never exported their products. Participation in exhibitions is also low among unaffiliated MSMEs. Only 43 MSMEs out of a total sample of 440 MSMEs have export experience, and only 118 MSMEs have exhibition experience, as shown in Figure 1. This indicates that export and exhibition experience is still lacking and needs to be improved.

TABLE 2: Findings based on micro, small and medium enterprises community membership.

Number	Community	*N*	Type of business			
			Culinary	Fashion	Craft	Services
1	Dekranas	7	-	4	3	-
2	Dekranas & Forkom	20	-	10	9	1
3	Dekranas, HBC & Forkom	4	-	4	-	-
4	Dekranas & KaMU	2	-	-	2	-
5	Dekranas, KaMU & Forkom	5	-	3	2	-
6	Forkom	61	42	6	4	9
7	HBC	50	15	14	8	13
8	HBC & Forkom	6	1	1	1	3
9	KaMU	28	12	9	2	5
10	KaMU & Forkom	27	12	11	1	3
11	Other Communities	18	8	4	3	3
12	Not yet joined	212	120	65	18	9
Total	**-**	**440**	**210**	**131**	**53**	**46**

Note: KaMU referring to "Karang Mitra Usaha" (a community name).
HBC, home business camp.

Demographics of business actors and business period

The average age of business owners ranges from 31 to 60 years old, with the 41–50 age group dominating (129 out of 440) (Table 3). The average age of MSME businesses in Yogyakarta is still less than 6 years, with the 1–3-year age group dominating (130 out of 440) (Table 4).

In-depth interviews and focus group discussions

Qualitative data analysis from in-depth interviews and FGDs revealed in-depth themes, providing context and reasons behind the quantitative data.

Qualitative findings: Thematic analysis of interviews and focus group discussions

The qualitative data from in-depth interviews and FGDs provided deeper insights into the structural and strategic challenges faced by MSMEs in Yogyakarta. Several key themes emerged, reflecting the complex landscape of HRM in these enterprises.

Structural and cultural constraints

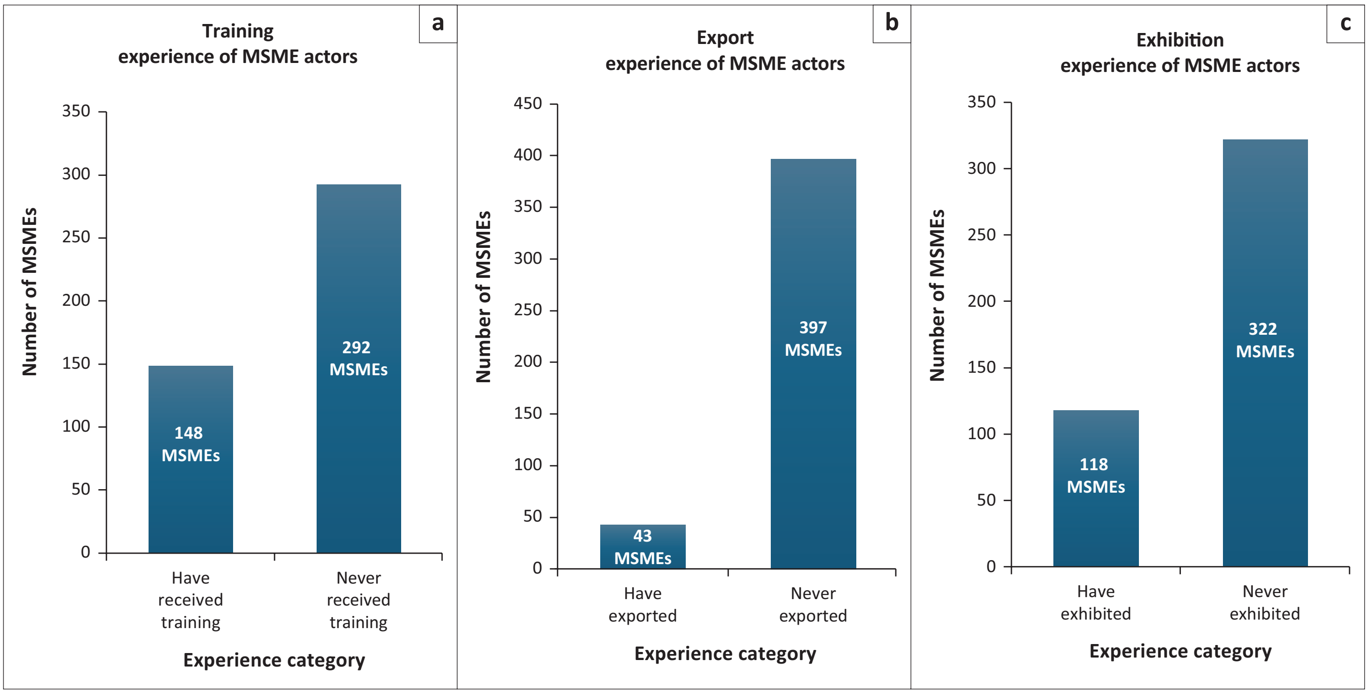
A primary challenge identified is the lack of community affiliation, often driven by a preference for independence or a lack of information regarding the benefits and procedures of joining. One participant noted:

> 'I do not know much about which community is right for my business. So far, I have been doing it on my own …' (Participant 12, 30–39 years, female, not yet joined any community)

This isolation is compounded by business instability and mimicry, where entrepreneurs frequently switch industries based on short-term trends rather than a long-term vision. A community representative observed that members often change products from fashion to culinary, indicating a significant lack of focus on long-term HRD.

Competency and formalisation gaps

There are significant gaps in formal training, primarily because of time constraints and the owner's focus on daily operations.



MSMEs, micro, small and medium enterprises.

FIGURE 1: The diagrammatic representation shows the high percentage of micro, small and medium enterprises without export experience: (a) training (b) export (c) exhibition.

As one MSME owner shared, they are often too 'busy managing production and sales' to consider training, even though those who participated in programmes such as financial management found them highly beneficial for their business.

Furthermore, the need for HR formalisation is evident, as most businesses rely on informal, family-based systems. Recruitment often lacks standardised procedures, as highlighted by one respondent:

> 'When recruiting employees, I only look at whether they are diligent or not. There are no tests or specific standards.' (Participant 08, 41–50 years, male, small enterprise)

This informality extends to a lack of understanding regarding employee rights and legal requirements such as social security.

Networking and institutional support

On a positive note, participants recognised the benefits of networking and exhibitions for gaining new ideas and direct consumer feedback, which they found more effective than purely online sales. One participant remarked:

> 'From the exhibition, we can get new networks, product ideas, and also direct feedback from consumers.' (Participant 05, 20-30 years, female, HBC member)

Finally, there was a strong acceptance of the proposed Grand Design framework among both MSMEs and government stakeholders. Stakeholders viewed it as a solution to fragmented development programmes, providing a 'clear roadmap' for MSMEs to scale up systematically. Government representatives found that a structured framework would also help to address issues such as duplicate data, ensuring that interventions are targeted and effective.

TABLE 3: Age of micro, small and medium enterprises entrepreneurs.

Number	Age (years)	Total
1	20–30	73
2	31–40	101
3	41–50	129
4	51–60	112
5	> 60	25
Total	-	**440**

TABLE 4: Age of micro, small and medium enterprises.

Number	Age (years)	Total
1	1–3	130
2	4–6	121
3	7–9	54
4	10–12	55
5	> 12	80
Total	-	**440**

Discussion

The paradox of structural informality and owner-centricity

The results reveal that MSMEs in Yogyakarta are heavily dominated by 'one-man show' operations, where owners perform nearly all managerial and operational tasks. This organisational informality, while offering agility, severely limits succession planning and scalability. From an RBV perspective, this reliance on the owner signifies an underutilisation of human capital as a strategic resource. This is evidenced by the informal recruitment practices found in this study, where owners often prioritise 'diligence' over standardised professional tests or competencies. Unlike MSMEs in developed countries that adopt formalised HRM systems, Indonesian MSMEs remain trapped in a cycle of informality that erodes their long-term resilience and competitiveness.

This finding aligns with Messersmith and Wales (2011), who identified informal HRM as a pervasive constraint in MSMEs, but our study extends the argument by illustrating how such practices specifically erode resilience and competitiveness in the Indonesian MSME sector (Messersmith & Wales, 2011). Compared with MSMEs in developed contexts, where HR formalisation is linked to innovation and performance, Indonesian MSMEs remain trapped in an informality cycle that constrains their ability to professionalise and innovate (Burhan et al., 2020).

Capability gaps and the isolation barrier

A significant finding of this study is the critical gap in workforce training, with 66% of MSMEs never having participated in formal programmes. Within the AMO framework, this represents a profound deficiency in the ability dimension. Many owners remain unaware of the strategic importance of training, focusing instead on immediate survival.

This lack of competency is exacerbated by weak community affiliation, with over half of the sampled MSMEs remaining unaffiliated with business associations. From the KBV, such isolation prevents MSMEs from accessing the knowledge-sharing platforms and networks essential for innovation and market intelligence (Grant, 1996). Participants expressed concerns regarding perceived costs and complicated procedures for joining communities, highlighting a structural barrier that keeps them from scaling beyond local markets.

Previous studies highlight similar challenges. Agrawal et al. (2023) observed that SMEs in South Asia often face growth constraints because of weak network affiliations. Conversely, research in Europe suggests that SMEs with strong cluster participation experience faster innovation and export readiness (Potinecke et al., 2009). Our findings confirm the former, while adding new evidence from Indonesia that weak networking is not only a missed opportunity but also a structural barrier that prevents MSMEs from scaling beyond local markets (Makedos, 2014). Within the AMO framework, this isolation further limits employees' opportunity to contribute effectively through collaboration and innovation.

Taken together, the four thematic findings provide a comprehensive picture of the structural and strategic limitations faced by MSMEs in Yogyakarta. Across workforce characteristics, training, network integration and HR practices, the evidence suggests that MSMEs struggle not only with operational constraints but also with fundamental HRM deficits that undermine their long-term competitiveness.

From the perspective of the RBV, the underdevelopment of human capital prevents MSMEs from leveraging their workforce as a sustained source of competitive advantage. The KBV highlights how weak community affiliation limits opportunities for knowledge acquisition and transfer, reinforcing organisational isolation. In addition, the AMO framework illustrates how deficits across all three dimensions, for example, lack of ability because of training gaps, lack of motivation because of limited incentives, and lack of opportunity because of weak structures and networks collectively constrain employee contributions.

By situating these findings within multiple theoretical lenses, this study extends prior research on MSME HRD in two important ways. Firstly, it demonstrates how HR deficits in emerging economies are not simply resource-related but are structurally embedded, reflecting broader institutional and cultural conditions. Secondly, it introduces an integrative perspective that connects RBV, KBV, and AMO, offering a multidimensional understanding of why MSMEs in Indonesia struggle to scale despite their economic significance.

Adaptive tiered human resource development (*grand design*): The foundation for sustainable micro, small and medium enterprises growth

The Adaptive Tiered Grand Design proposed in this study is directly derived from the empirical findings as summarised in Table 5. Unlike generic HRD models that assume homogeneity, this framework recognises the heterogeneity of MSMEs and provides a phased, context-sensitive pathway for HRD. By integrating the dimensions of ability, motivation and opportunity with strategic resources and knowledge flows, the design ensures that MSMEs are not only able to address immediate capability gaps but also build long-term resilience.

This adaptive model contributes to the literature as a novel conceptual framework, highlighting how HRD in emerging economies must account for structural constraints, resource limitations and cultural contexts. It also advances practical implications by offering policymakers a scalable and sustainable blueprint for MSME development. As such, the Adaptive Tiered Grand Design positions HRD not as a peripheral intervention but as a foundational strategy for achieving sustainable MSMEs, aligned with national and global development agendas (Figure 2).

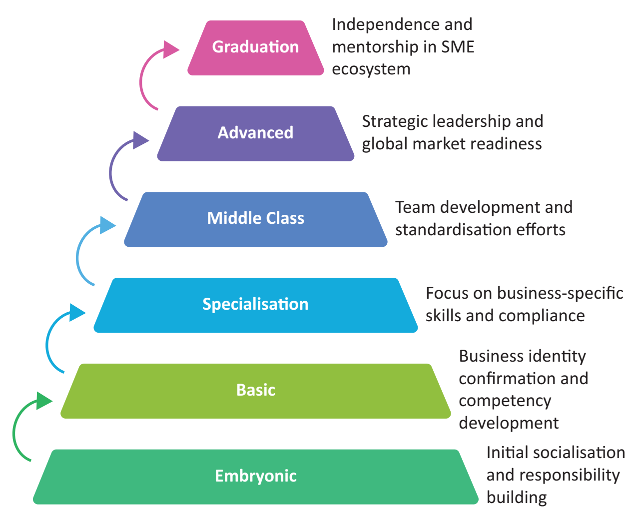
To address the complex and diverse HRM challenges among MSMEs in Yogyakarta City, this study proposes a tiered HRD *Grand Design* that is not only structured but also adaptive to business dynamics and business profiles. This *Grand Design* is designed as a progressive roadmap, guiding MSME entrepreneurs through a series of stages of HR capacity development, from the formation of entrepreneurial intent to proven business independence. The inherent flexibility in each level allows for tailored interventions, ensuring the relevance and effectiveness of the guidance. The proposed progressive development path is as follows:

TABLE 5: Tiered human resource development *Grand Design.*

Stage and variables	Description
Stage 1: Embryonic stage: Cultivating intentions and social foundations for entrepreneurship	
Human resource focus	This stage focuses on instilling basic entrepreneurial intent and commitment in individuals who are just starting a business. Key aspects of human resource management here are initial socialisation of work ethic, self-discipline, and a basic understanding of responsibility as a business owner.
Uniqueness & adaptability	Unlike a rigid approach, this level recognises that many entrepreneurs emerge from 'desperate' circumstances or simply continue the family business. Therefore, human resource development at this stage is *nurturing*, focusing on building internal motivation and willingness to join the community, which becomes the 'womb' or initial protector for the 'embryo' of the business. The duration of this stage (e.g. 1–2 years) can be adjusted based on the individual's speed of adaptation.
HRM indicators	Business operators aged 0–1 years, not yet members of a business organisation, and still in the trial production stage.
HRM curation	Evaluation is based on the business owner's willingness to make clear business choices (culinary, *craft*, *fashion*, services) and join formal communities such as Forkom. Mental readiness and commitment are the main determinants for advancing to the next level.
Stage 2: Basic level: Business identity confirmation and core functional competency development	
Human resource focus	Once the intention has been formed, this stage aims to confirm the type of business to be run and begin to develop core functional competencies. Human resource development shifts to introducing basic operational and managerial practices relevant to the type of business chosen.
Uniqueness and adaptability	This level serves as a 'supplement' or 'finishing touch' to the embryonic stage, where MSMEs are nurtured at the sub-district level (e.g. for 1 year) in MSME communication forums. Adaptability is evident in the focus of guidance tailored to the type of business that is beginning to 'grow'. An important aspect of MSDM is encouraging MSME actors to determine their own direction freely but still in line with the guidance of the OPD.
HRM indicators	Business actors are more than 1 year old, have certainty about the type of business, have been fostered by the village for at least 1 year, are members of Forkom, and are not members of other business organisations.
HRM curation	Readiness to move up a level is evaluated based on possession of a Business Identification Number (NIB) as proof of business legality and a letter of recommendation from the sub-district office. This indicates the readiness of human resources for business formalisation and accountability.
Stage 3: Specialisation: Business competence and regulatory compliance	
Human resource focus	MSMEs at this level are already capable of developing basic business planning and systems. HR development shifts to specialisation in competencies relevant to the type of business being focused on. Training materials cover basic knowledge that supports the business, such as cultivation for the agricultural sector or sanitation for the culinary sector.
Uniqueness and adaptability	MSMEs choose to join similar MSME communities, which enables more in-depth and specific human resource development. Adaptation is carried out by relevant regional government agencies (e.g. the Agriculture Office for livestock farming), ensuring highly relevant technical training. Business actors are expected to be 'permanent' in their business choices.
HRM indicators	Business actors have been operating for more than 2 years, have a focused business type, choose to join a permanent business organisation, receive at least 1 year of mentoring, and already have a business registration number.
HRM curation	Assessment is based on completion of basic education related to the business being run and possession of a certificate of completion from the supervising OPD. This emphasises the improvement of technical and professional competencies of human resources.
Stage 4: Middle class: Team development and professional standardisation	
Human resource focus	MSMEs at this level demonstrate stability and a significant influence on economic growth. HR development focuses on the owner's ability to coordinate and foster a work team (minimum of one employee). This is a crucial step from *a one-man show* to a more formal organisational structure.
Uniqueness and adaptability	MSMEs join communities such as KaMU, HBC, Dekranasda, or centres. Human resource development here emphasises product and process standardisation, as well as preparation for a wider market. Adaptability is evident in efforts to ensure that products have *brands* and packaging that meet standards, as well as relevant certifications (halal, ISO, PIRT). MSDM aspects include the development of internal SOPs.
HRM indicators	Joining a medium-sized SME community and demonstrating a clear level of consistency in business operations.
HRM curation	Graduation criteria include no longer meeting administrative requirements in the previous community, having participated in at least 3 local exhibitions, products having *a* standard *brand* and packaging, and product certification. These are indicators of HR readiness to manage more complex operations.
Stage 5: Advanced level: Strategic leadership and global expansion	
Human resource focus	This is the stage for mature MSMEs that are capable of responding to business issues and managing public opinion. HR development focuses on strengthening strategic leadership, the ability to operate in large teams, and building strong external partnerships.
Uniqueness and adaptability	MSMEs are expected to have strong motivation towards large-scale trading with businesses run by teams. Human resource development is adapted to prepare MSMEs to penetrate national and global markets. Emphasis is placed on experience in overcoming business problems and the ability to become consultants for other MSMEs.
HRM indicators	Business age of more than 3 years, ability to manage public opinion, respond to business issues, experience in overcoming business problems, diagonal or vertical business, and strong motivation towards large-scale trading with a working team.
HRM curation	Graduation criteria are very strict, including willingness to become a partner of OPD organisers and MSME mentors, independent of government assistance, capable of becoming a consultant, willing to become a foster parent for other MSMEs, at least 3 times experience in national exhibitions, has partnered with state-owned enterprises/regional-owned enterprises/private companies/foreign companies, and the business has a legal entity (PT) or business entity (CV). This is a reflection of the maturity of entrepreneurial human resources who are ready for global challenges.
Stage 6: Graduation level: Independence and role as SME human resource mentor	
Human resource focus	MSMEs that have 'graduated' are models of business independence. Human resource development here is continuous, focusing on innovation and their ability to become coaches or mentors for MSMEs at the previous level.
Uniqueness and adaptability	They no longer depend on government facilities, but rather become agents of change in the SME ecosystem. Their adaptability is reflected in their ability to develop their businesses independently and have a solid business management system.
HRM indicators	They are registered as a business entity (CV) or a legal entity (PT), can develop their businesses independently, and have a system for business management.
HRM curation	After 2 years of guidance from the Trade Office, a curation process is carried out to determine graduation. UMKs who graduate are completely released from local government guidance. This shows that their human resources have reached the highest level of maturity.

HRM, human resource management; MSME, micro, small and medium enterprise; MSDM, Manajemen Sumber Daya Manusia (Human Resource Management); OPD, *Organisasi Perangkat Daerah* (Local Government Agency); HBC, Home Business Camp; ISO, International Organization for Standardization; PIRT, *Pangan Industri Rumah Tangga* (Home-Based Food Industry Product); SOP, Standard Operating Procedure; UMK, *Usaha Mikro dan Kecil* (Micro-, Small- and Medium Enterprise); PT, *Perseroan Terbatas* (Limited Liability Company Ltd); CV, *Commanditaire Vennootschap* (Limited Partnership).

This *Grand Design* is adaptive through a continuous curation mechanism at every level. If MSMEs are found to be eligible to be placed directly in the Basic, Intermediate, or Advanced clusters, even though they have never been included in the Embryonic and Pre-basic clusters, an integrated policy between sub-districts, districts and supervisory *Organisasi Perangkat Daerah (OPDs)* [Local Government Agency] is required to validate and adjust their guidance paths. This ensures that *the Grand Design* is not rigid, but rather responsive to the diverse potential and development of MSMEs. The main functions of this *Grand Design* are as a development guideline, control tool and basis for curation for OPDs, as well as a direction and goal for MSME actors. This is a strategic step to realise planned, orderly, focused, sustainable and responsible MSME development, particularly in terms of HRD.



SME, small- and medium enterprises.

FIGURE 2: Pyramid of the grand design for sustainable micro, small and medium enterprises growth.

The findings of this study have significant implications for policy design in strengthening HRD among MSMEs. The proposed Grand Design for Tiered HRD emphasises a phased and contextualised approach that addresses the heterogeneous capacities of MSMEs. This is particularly critical in the Indonesian context, where MSMEs constitute the backbone of the economy but remain structurally constrained in terms of workforce capabilities.

From an RBV perspective, the framework provides a pathway for transforming human capital into a strategic asset through systematic investment in training, succession planning and professionalisation. By embedding HR development into long-term business strategies, MSMEs can build rare and inimitable capabilities that serve as sources of sustained competitive advantage. Meanwhile, the KBV underpins the importance of strengthening MSMEs' integration into networks, clusters and knowledge-sharing platforms. This ensures that HR development is not only internally driven but also enhanced by external knowledge flows and collective learning. Within the AMO framework, the tiered design addresses all three critical dimensions: upgrading ability through targeted training, enhancing motivation via recognition and incentive systems and expanding opportunity through institutional support and networking platforms.

Policy-wise, this framework calls for multilevel interventions. At the micro level, MSMEs should receive accessible training programmes tailored to their specific industry and growth stage. At the meso level, local governments and associations should facilitate cluster-based development, mentorship, and knowledge-sharing mechanisms to overcome isolation. At the macro level, national policies must align HRD for MSMEs with broader development agendas, such as digital transformation strategies, SDGs and Indonesia's Vision 2045. Such alignment ensures that MSME HRD does not operate in isolation but contributes to national competitiveness.

This study contributes to the literature by extending previous research that often treated HRD in MSMEs as a homogeneous challenge (Mohiya et al., 2020; Park et al., 2020). By proposing a tiered and context-sensitive framework, our findings highlight the need for differentiated HRD policies in emerging economies, where institutional weaknesses and resource scarcity exacerbate capability gaps. This approach also resonates with global debates on inclusive development, underscoring that MSME HRD is not merely a business concern but a structural requirement for equitable and sustainable economic growth.

Conclusion

This study provides a comprehensive analysis of HRD within urban MSMEs in Yogyakarta, Indonesia, highlighting the structural and strategic challenges that limit their competitiveness. The findings demonstrate four critical issues: (1) owner-centric workforce structures that hinder professionalisation and succession planning, (2) critical training and capability gaps, (3) weak community affiliation and knowledge networks and (4) reliance on informal HR practices. Together, these constraints underscore the fragile foundations of MSMEs' human capital and their limited ability to compete in an increasingly dynamic environment.

Theoretically, this research contributes by integrating the RBV, KBV and the AMO framework to explain why MSMEs in emerging economies remain structurally constrained despite their macroeconomic significance. The proposed Adaptive Tiered Grand Design for HRD extends prior studies by offering a context-sensitive, phased framework that directly responds to the heterogeneous capacities of MSMEs. This positions HRD not as a peripheral function but as a core strategy for building resilience and sustainability in MSMEs.

Practically, the findings have direct policy implications at the micro, meso and macro levels. At the micro level, MSMEs require targeted training programmes aligned with industry needs and digital transformation. At the meso level, local governments and associations must strengthen cluster-based development and knowledge-sharing platforms. At the macro level, national policies should align MSME HRD with broader agendas, including the SDGs and Indonesia's Vision 2045, ensuring that HR development supports inclusive and sustainable growth.

Despite its contributions, this study has several limitations. Firstly, the analysis was limited to urban MSMEs in Yogyakarta, which may restrict generalisability to other regions or rural contexts. Secondly, the study relied on cross-sectional data, which may not capture long-term dynamics of HRD. Future research should adopt longitudinal approaches and comparative studies across regions or countries to validate and extend the proposed framework.

This study underscores that sustainable MSME development requires a deliberate and structured approach to HRD. The Adaptive Tiered Grand Design introduced here offers both a theoretical contribution and a practical policy roadmap for strengthening MSME competitiveness in emerging economies.

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Competing interests

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CRediT authorship contribution

Sugiyanto Sugiyanto: Conceptualisation, Data curation, Formal analysis, Methodology, Writing – original draft. Tomi A. Triono: Software, Supervision, Validation, Writing – review & editing. Catarina W. D. Purbaningrum: Investigation, Visualisation, Writing – review & editing. Nurdiana T. Mulatsih: Project administration, Resources, Writing – review & editing. Mubasit Mubasit: Data curation, Formal analysis, Validation. Yuli Setyowati: Validation, Writing – review & editing. All authors reviewed the article, contributed to the discussion of results, approved the final version for submission and publication, and take responsibility for the integrity of its findings.

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Data availability

The data that support the findings of this study are available from the corresponding author, Sugiyanto Sugiyanto, upon reasonable request and with the prior approval of the authors.

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