

Synthesising Challenges and Opportunities in Human Resource Development for Productivity Enhancement: Toward a Framework for Malaysia's High-Income Transition

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Abstract: This paper provides an in-depth synthesis of Malaysia's human resource development (HRD) strategies, highlighting their role in promoting productivity enhancement and supporting the nation's transition toward a high-income economy. Malaysia has placed HRD at the centre of its economic planning through the 12th Malaysia Plan, the MyDIGITAL blueprint, and other policy initiatives. However, challenges remain in addressing the persistent issues of skill mismatch, limited TVET participation, talent mobility, and inclusivity in workforce development. Drawing from literature published between 2018 and 2023, supplemented by foundational studies that capture Malaysia's HRD evolution, this review analyses the alignment between HRD policies, institutional mechanisms, and productivity performance. It proposes a conceptual framework that links HRD challenges, policy enablers, and productivity outcomes. The framework demonstrates how human capital development contributes to innovation, competitiveness, and sustainable economic upgrading. The paper concludes with policy recommendations and a research agenda focusing on HRD-productivity linkages, coordination mechanisms, and longitudinal policy evaluation.

Keywords: Human resource development, Human capital, Skills training, Workforce development, Productivity; Malaysia

1. Introduction

Human Resource Development (HRD) has become one of Malaysia's most critical policy levers for economic and social transformation. The government's aspiration to achieve high-income status requires not only an expansion in industrial capacity but also a sustained rise in workforce productivity. In a rapidly changing global economy, characterised by technological disruption, demographic shifts, and increasing competition for skilled labour, HRD represents a key strategic driver that determines Malaysia's ability to remain competitive. Over the past two decades, Malaysia has implemented numerous HRD policies aimed at strengthening its labour market and improving employability outcomes. The 12th Malaysia Plan (2021–2025), the MyDIGITAL blueprint, and the National Fourth Industrial Revolution (4IR) Policy each emphasise the development of a future-ready workforce. Yet, despite these efforts, several challenges persist — particularly the limited uptake of technical and vocational education and training (TVET), persistent skills mismatches, and the ongoing outmigration of talent.

To sharpen the analytical focus and demonstrate the review's distinct contribution, this paper addresses the following research questions:

RQ1: Which human resource development (HRD) challenges most constrain Malaysia's transition toward a high-income, productivity-driven economy?

RQ2: What policy and governance levers show the greatest potential to enhance workforce skills, innovation, and productivity outcomes?

RQ3: How can a synthesised HRD framework support coherent strategies that link education, training, and institutional coordination for long-term productivity growth?

In answering these questions, this review synthesises and evaluates the literature to construct a framework that links HRD mechanisms to productivity enhancement. The framework is intended to assist policymakers, educators, and industry stakeholders in identifying priority areas for reform, coordination, and investment. It also clarifies how human capital development underpins productivity improvement, technological adoption, and Malaysia's long-term economic transformation.

2. Literature Review

2.1 HRD in Malaysia: Background and Evolution

Human resources are the foundation of every organization, uniting individuals of diverse roles toward shared goals (Abiddin, 2007; Abiddin & West, 2007; Hassan et al., 2016). In Malaysia, Human Resource Development (HRD) has evolved alongside the nation's economic transformation. Since the 1980s, HRD has been a key policy

instrument for enhancing productivity, driving industrialisation, and strengthening competitiveness. The government has long recognized human capital as central to sustainable growth, and HRD's evolution mirrors successive phases of national development planning. The First and Second Industrial Master Plans (IMP I: 1986-1995; IMP II: 1996-2005) focused on industrial diversification and workforce upgrading to support export-led growth. HRD policies during this era expanded vocational and technical education, promoted science and technology training, and strengthened industrial linkages to meet labor market needs. The Human Resources Development Act 1992 and the establishment of the Human Resources Development Fund (HRDF) institutionalized employer-based training, linking workforce competencies to enterprise productivity.

In the 2000s, Malaysia entered a new phase emphasizing knowledge-based economic development. The Knowledge Economy Master Plan (2001) and the 10th Malaysia Plan (2011–2015) redefined HRD as a driver of innovation, entrepreneurship, and global competitiveness. Major initiatives such as the National Dual Training System (NDTS) and the strengthening of Technical and Vocational Education and Training (TVET) institutions integrated academic learning with industrial experience to produce a high-skill labor force adaptable to technological change. The 11th Malaysia Plan (2016–2020) marked a shift toward inclusivity and equitable access to education and training. HRD strategies began addressing demographic challenges, regional disparities, and gender gaps. Yet productivity growth remained moderate compared to regional peers, revealing ongoing issues in skill utilization, technology adoption, and institutional coordination.

Under the 12th Malaysia Plan (2021-2025) and MyDIGITAL, HRD focuses heavily on digital skills, innovation ecosystems, and productivity enhancement. Within the Fourth Industrial Revolution (IR4.0) context, automation and data-driven technologies reshape work and skills demand. Key initiatives such as the National TVET Council, Digital Economy Blueprint, and Future Skills Framework illustrate Malaysia's intent to align human capital strategies with digital transformation and reduce skills mismatch through cross-ministerial coordination. Over time, HRD in Malaysia has progressed from a training-oriented model emphasizing skill acquisition to a strategic framework integrating education, technology, and governance reform. Nonetheless, persistent constraints remain—fragmented coordination, limited private-sector involvement, and inconsistent evaluation mechanisms hinder effectiveness. While HRD policies increasingly link to productivity goals, measurable impact indicators remain weak.

Major challenges include: (1) Skills mismatch - the gap between graduate competencies and industry needs limits innovation capacity; (2) Low TVET participation - vocational pathways remain undervalued, restricting technical talent supply; (3) Ageing workforce - demographic shifts increase the need for re-skilling and lifelong learning; (4) Brain drain - nearly two million Malaysians abroad represent a major loss of skilled labor; and (5) Inclusion gaps - gender, regional, and socioeconomic disparities reduce workforce efficiency. These structural barriers continue to constrain productivity and human capital efficiency. Overcoming them requires aligning HRD planning with economic diversification and digital transformation strategies.

In summary, Malaysia's HRD evolution reflects sustained policy commitment to human capital as a cornerstone of economic progress. However, translating this commitment into measurable productivity outcomes remains uneven. Continuous investment in skills, coupled with stronger integration of HRD governance into national productivity strategies, is essential. Figure 1 shows the conceptual framework illustrating the relationship between HRD challenges, policy enablers, and productivity outcomes in Malaysia.

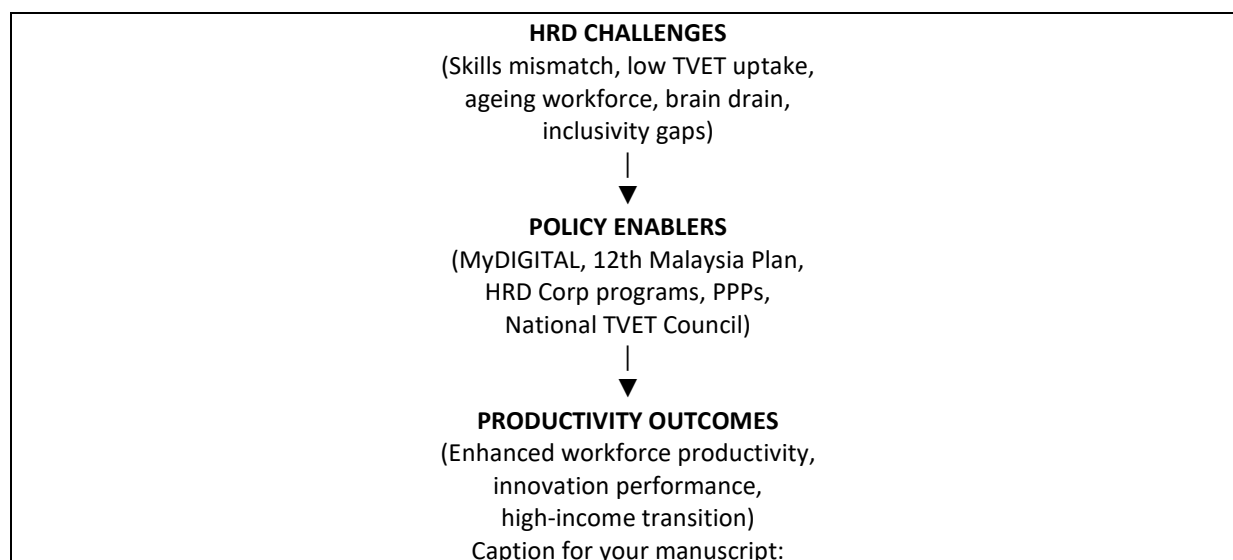


Figure 1: Conceptual Framework Illustrating the Relationship between HRD Challenges, Policy Enablers, and Productivity Outcomes in Malaysia

3. Methodology

This paper adopts a structured narrative review to analyse Malaysia's human resource development (HRD) policies and their relationship with productivity enhancement. The approach combines systematic elements of database searching with interpretive synthesis to capture both the breadth of existing studies and the depth of policy insights. The objective is to develop an integrated understanding of HRD mechanisms and their role in improving productivity outcomes across Malaysia's evolving economic landscape. The review process followed a transparent and replicable design. Academic sources were drawn from recognised databases including Scopus, Web of Science, and Google Scholar, while policy documents were obtained from official repositories such as the Economic Planning Unit (EPU), Ministry of Human Resources (MOHR), Ministry of Higher Education (MOHE), and National TVET Council. The time frame was set between 2018 and 2023, aligning with Malaysia's current policy cycle and the implementation of digital and productivity-led strategies. However, to capture Malaysia's HRD evolution, several foundational studies predating 2018 were also included based on their enduring conceptual relevance and citation influence.

The review process consisted of three sequential stages: (1) Identification: Relevant materials were located using combinations of keywords such as "human resource development," "Malaysia," "skills," "productivity," and "TVET."; (2) Screening: Studies were filtered for relevance to HRD governance, workforce development, or productivity enhancement. Duplicates, non-English sources, and purely descriptive reports were excluded, and (3) Inclusion: A final set of academic papers, policy documents, and institutional reports was selected for qualitative synthesis and framework construction. In total, the process yielded 96 initial records, of which 54 were screened for relevance and 35 were included in the final synthesis. These included empirical studies, conceptual papers, and government policy documents. Figure 2 presents a simplified flow diagram that illustrates the search and selection process.

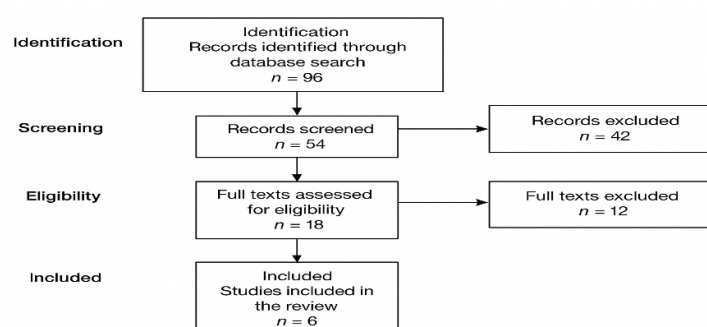


Figure 2: Flow Diagram that Illustrates the Search and Selection Process

Although the review incorporates structured search procedures, the diverse nature of HRD literature, spanning policy, management, education, and labour economics, renders a strictly systematic review less feasible. Therefore, this study applies a structured narrative synthesis approach, combining analytical rigour with interpretive flexibility. This enables the inclusion of both academic and policy-oriented perspectives while maintaining methodological transparency. To ensure clarity in interpreting earlier works, “foundational” sources published before 2018 were identified based on their theoretical or institutional significance. These sources are presented separately in Table 1 to distinguish their contextual relevance. This approach provides continuity between historical HRD evolution and recent productivity-oriented policies, ensuring that the final synthesis captures both legacy and contemporary dimensions of Malaysia’s HRD ecosystem. Among these, seven foundational HRD studies published before 2018 are summarised in Table 1 to illustrate the historical context of Malaysia’s HRD evolution.

Table 1: Foundational HRD Studies (Pre-2018) Included in the Review

No.	Author(s) / Year	Title / Focus	Key Contribution to HRD and Productivity in Malaysia
1	Economic Planning Unit (2004)	<i>Malaysia: 8th Malaysia Plan (2001–2005)</i>	Early articulation of HRD as a key pillar in national productivity and industrial policy.
2	Ministry of Human Resources (2009)	<i>Human Capital Development Master Plan</i>	Framework for linking HRD to national innovation and productivity outcomes.
3	Rahim, A. & Zain, M. (2011)	<i>Workforce Skills and Employability in Malaysia</i>	Highlights persistent skills mismatch between tertiary education and industry demand.
4	Kaur, S. (2012)	<i>TVET Policy Implementation in Malaysia</i>	Evaluates the gaps between policy design and institutional capacity in vocational education.
5	UNESCO (2014)	<i>Malaysia Education Blueprint (Higher Education)</i>	Positions higher education as a driver of workforce productivity and innovation.
6	World Bank (2016)	<i>Malaysia’s Digital Economy and Human Capital Report</i>	Introduces productivity-linked measures for assessing HRD readiness for Industry 4.0.
7	Abd. Rahman, R. (2017)	<i>Human Capital and Economic Transformation</i>	Establishes linkages between HRD, productivity, and Malaysia’s competitiveness in ASEAN.

4. Results

The structured narrative review reveals a complex but coherent relationship between Malaysia’s human resource development (HRD) policies and national productivity outcomes. The findings indicate that while the country has made consistent progress in strengthening its HRD ecosystem, productivity growth remains below potential due to structural, institutional, and perception-based constraints. The results are organised around three interrelated themes: (1) HRD challenges and constraints, (2) policy and institutional enablers, and (3) HRD–productivity linkages; and (4) HRD Opportunities in Malaysia. Collectively, these findings show that the effectiveness of HRD in Malaysia depends not only on training provision but also on how policy design, implementation, and coordination translate into measurable productivity improvements.

4.1 HRD Challenges and Constraints

The review highlights five critical HRD challenges that constrain productivity enhancement in Malaysia: skills mismatch, low TVET participation, an ageing workforce, talent mobility and brain drain, and persistent inclusion gaps. Despite significant progress, Malaysia continues to face several persistent HRD challenges. One major issue is the shortage of highly skilled workers and the mismatch between graduates’ qualifications and industry needs, particularly in technical fields and the digital economy (Abdullah, 2009; Ismail & Abiddin, 2014).

Malaysia’s HRD system continues to face structural challenges that constrain productivity growth. The most pressing issue is the skills mismatch between education outcomes and industry demand, particularly in digital and technical fields. Despite numerous training programs, many graduates lack practical competencies aligned with labour market needs. A second challenge is the low uptake of Technical and Vocational Education and Training (TVET), often perceived as a secondary option compared to academic pathways. This perception limits the supply of skilled technicians and mid-level professionals essential for industrial productivity. The ageing

workforce further complicates the landscape. As Malaysia advances toward high-income status, the share of older workers is increasing, underscoring the urgency of lifelong learning and re-skilling initiatives. Another concern is the ongoing brain drain, with skilled Malaysians seeking better opportunities abroad. This talent outflow reduces the nation's innovative and managerial capacity.

Finally, inclusion gaps persist among women, rural communities, and persons with disabilities. Unequal access to quality education and training opportunities restricts the productive potential of significant segments of the labour force. Together, these five challenges illustrate the critical need for a coherent, productivity-oriented HRD framework capable of aligning talent development with Malaysia's economic transformation goals.

4.2 Policy and Institutional Enablers

The Malaysian government has introduced a broad set of HRD policies and institutional mechanisms to stimulate productivity-led growth. The review identifies five major enablers: strategic policy frameworks, institutional coordination, private-sector engagement, digital skills initiatives, and performance-based funding systems.

First, the 12th Malaysia Plan (2021–2025) and MyDIGITAL Blueprint place human capital development at the centre of productivity-driven economic transformation. These frameworks prioritise digital competency, innovation ecosystems, and the integration of education and industry. For example, the “Boosting Labour Productivity” strategy under the 12th Plan explicitly targets productivity growth of 3.6% annually, to be achieved through workforce upskilling, automation, and HRD-led innovation. Second, the establishment of the National TVET Council represents a major governance breakthrough. It serves as a coordination hub across the Ministry of Human Resources (MOHR), Ministry of Higher Education (MOHE), and Ministry of Education (MOE). By aligning curriculum design, industry standards, and certification processes, this council promotes consistent training outcomes and directly links skills formation with productivity improvement. Effective coordination at this level prevents policy fragmentation and ensures that investments in training translate into measurable productivity impacts. Third, HRD Corp (Human Resource Development Corporation) acts as a key intermediary between employers and policymakers. Its levy-based funding model incentivises companies to invest in staff training, thereby improving firm-level productivity. Evaluations show that organisations participating in HRD Corp schemes report higher labour efficiency and innovation rates compared to non-participants. This indicates that public–private training partnerships can yield tangible productivity dividends. Fourth, Malaysia has intensified its focus on digital and technological skills as enablers of productivity growth. Programs under MyDIGITAL, such as the Digital Skills Training Directory and the Future Skills Framework, promote upskilling in artificial intelligence, data analytics, and automation. These initiatives equip the workforce to adapt to Industry 4.0 demands, increasing labour productivity and accelerating the country's transition to a high-income economy.

Finally, performance-based funding mechanisms now link HRD programs to measurable productivity indicators. Institutions receiving government grants must report output-oriented metrics, such as employment outcomes, innovation capacity, and productivity growth rates. This results-oriented approach marks a shift from training quantity to training quality, ensuring that HRD investments generate real economic value. Together, these policy and institutional enablers demonstrate that Malaysia's HRD model is progressively evolving from a human-capital accumulation framework to a productivity optimisation system where every HRD intervention is evaluated by its contribution to productivity growth.

4.3 HRD-Productivity Linkages

A central finding of the review is that HRD effectiveness in Malaysia is strongly correlated with productivity performance at both firm and national levels. The literature identifies three main linkages: (1) workforce capability and output efficiency, (2) organisational innovation capacity, and (3) systemic policy coordination.

First, workforce capability directly affects labour productivity. Empirical studies indicate that workers with continuous training exhibit up to 20% higher productivity than untrained counterparts. This productivity gain arises from enhanced task efficiency, reduced error rates, and improved technological adaptability. HRD initiatives that promote continuous learning, skill upgrading, and competency-based progression therefore yield cumulative productivity gains across industries. Second, HRD contributes to organisational innovation capacity, a key driver of total factor productivity (TFP). Companies that integrate HRD with research and development (R&D) activities report higher innovation output, product diversification, and export competitiveness. These effects demonstrate that HRD not only raises individual skills but also strengthens collective capabilities for innovation, the foundation of productivity-led growth. Third, policy coordination and

governance quality determine the overall productivity payoff of HRD programs. Fragmented or overlapping initiatives dilute impact, whereas coordinated frameworks such as the alignment of MOHR, MOHE, and MOE under the National TVET Council create synergies that multiply productivity effects. This systemic linkage reinforces the argument that productivity is not a by-product of HRD but its ultimate measure of success.

In conclusion, the results confirm that Malaysia's HRD ecosystem possesses substantial potential for productivity enhancement. The challenge now lies in translating policy coherence into measurable outcomes ensuring that every HRD strategy, from TVET modernisation to digital-skills investment, contributes directly to labour productivity growth, technological innovation, and sustained national competitiveness.

4.4 HRD Opportunities in Malaysia

Malaysia possesses several emerging opportunities to enhance human resource development and address future workforce needs. One significant opportunity lies in the strategic utilization of its youthful and diverse population. With a median age of approximately 30 years, Malaysia has a demographic advantage that can be leveraged through targeted youth-focused development programs. Initiatives that foster entrepreneurial skills, leadership development, and digital literacy among the younger generation can help build a resilient and adaptive workforce (Khazanah Research Institute, 2018). Another promising area is the strengthening of lifelong learning ecosystems. Malaysia is increasingly emphasizing continuous education and micro-credentialing through online platforms and flexible learning arrangements. This approach enables the working population to reskill and upskill without leaving employment, particularly in high-demand sectors such as green technology, healthcare, and the digital economy (Ministry of Human Resources Malaysia, 2022).

Moreover, Malaysia's aspiration to become a regional education and training hub presents new HRD opportunities. The influx of international students and collaborations with foreign universities and industries contribute to knowledge transfer, innovation, and cross-border mobility (Ismail & Abiddin, 2009). These engagements also support the development of globally competitive human capital (Ministry of Higher Education Malaysia, 2020). The integration of ESG (Environmental, Social, and Governance) principles in business strategy also opens up avenues for HRD by encouraging ethical leadership, inclusive workplace practices, and sustainability-related skills training. Such trends are aligned with global best practices and enhance Malaysia's appeal as a talent destination (World Bank, 2021). Additionally, increased investment in digital infrastructure under the MyDIGITAL initiative and the National Fourth Industrial Revolution Policy provides momentum for future-ready skills development. Public-private partnerships in this domain, including collaborations with global tech companies, are expected to accelerate Malaysia's transition into a knowledge-driven economy (Economic Planning Unit, 2021). Table 2 shows the literature search on human resource development in Malaysia which include the objective of the article and the main findings.

Table 2: Literature Search on the Progress of Human Resource Development in Malaysia

Author, Year	Objectives	Method	Sample	Theme	Main Findings
Azizan, N., Pangil, F., & Zin, M.L.M. (2021)	To present an overview of human capital development in Malaysia	Literature review and document analysis	-	Overview of human capital development	The education and training system is a key platform for HR development; the government emphasizes improving human capital quality to remain globally competitive.
Widarni, E. L., & Wilantari, R. N. (2021)	To identify the influence of health and education on Malaysia's economic growth	Quantitative – Threshold Autoregressive	World Bank secondary data	Training and economic performance	Health and education are critical to productivity and national performance; education strengthens human capital effectiveness.
Ismail, A., & Abiddin, N. Z. (2014)	To identify issues and challenges of TVET education for human capital development	Literature review	-	Issues in HRD	Despite a sizable workforce, only about 28% were highly skilled in 2010; TVET struggles with perception and industry relevance.
Abdullah, H. (2009)	To explore HR challenges in manufacturing firms	In-depth interviews	HR managers	HRM and technical workforce	Major challenges include recruiting technical experts and adapting senior staff to automation and tech evolution.

5. Discussion

5.1 A Productivity-Oriented HRD Framework

This discussion interprets the findings through a productivity-oriented HRD framework. Malaysia's HRD architecture has evolved through multiple policy phases, yet productivity performance still hinges on integrating skills, governance, and institutional coordination. HRD must not only expand human capital but ensure competencies translate into measurable productivity gains. Education reform and TVET modernization are crucial to resolve skill, productivity mismatches, while governance improvements such as cross-ministerial collaboration and industry partnerships are vital to avoid duplication and enhance training outcomes. Productivity growth depends on synergy between HRD design and implementation at national, organizational, and sectoral levels. Malaysia's HRD has progressed through structured government strategies and inter-agency collaboration. However, challenges such as skill mismatches, low TVET uptake, an aging workforce, and brain drain continue to impede outcomes. A key issue is the persistent gap between graduate supply and industry demand. Despite curriculum reforms and university–industry partnerships, employers still report difficulty finding job-ready graduates (Azizan et al., 2021; Sparrow et al., 2016), particularly in digital technology, advanced manufacturing, and green industries (Economic Planning Unit, 2021). This highlights the need for a more labor-market-responsive education and training system.

Low public perception of TVET remains a barrier to building a skilled workforce. Despite promotional campaigns, many students and parents still see TVET as a second-choice pathway (Ismail & Abiddin, 2014). Consequently, Malaysia faces shortages in technical fields even as TVET institutions expand. Strengthening public-private partnerships, offering employer incentives, and creating clear progression routes for TVET graduates into higher education and careers are essential to boost enrollment and prestige. An aging and digitally unprepared workforce is another challenge. Many older workers lack digital skills and are excluded from lifelong learning initiatives, limiting productivity in a digital economy (Abdullah, 2009). With the proportion of workers aged 50 and above steadily rising (Department of Statistics Malaysia, 2022), upskilling programs must become more inclusive and flexible for older employees.

Brain drain also poses a persistent threat, as over 500,000 Malaysians, many of them professionals work abroad (World Bank, 2021). This results in both talent loss and underutilization of public investment in education. Policies such as return migration incentives, improved career pathways, and competitive compensation are needed to retain and attract talent. The COVID-19 pandemic exposed further structural vulnerabilities. While digitalization accelerated, many especially informal workers were left behind due to limited access to training and technology (International Labour Organization, 2021). Government programs like the Penjana HRDF Training Scheme provided short-term relief, but long-term strategies must institutionalize reskilling and digital inclusion as core HRD pillars (Ministry of Finance Malaysia, 2020).

Women's participation in the labor force also remains below potential, hindered by career interruptions linked to caregiving responsibilities (Khazanah Research Institute, 2021). Initiatives such as flexible work options, subsidized childcare, and women-focused upskilling can enhance female participation and national productivity. Strategically, frameworks like the Shared Prosperity Vision 2030, MyDIGITAL Blueprint, and Malaysia's Education Blueprint 2013-2025 align human capital development with future economic goals. Yet fragmented implementation across ministries often leads to inefficiencies (World Bank, 2020). A more integrated and adaptive governance structure is needed to synchronize HRD policies with evolving labor market realities. In summary, Malaysia's HRD trajectory shows a strong policy foundation but remains constrained by systemic gaps in skills development, labor market integration, and inclusion. A holistic, evidence-based, and future-oriented HRD strategy is essential to sustain economic growth and social equity in the decades ahead.

5.2 Policy and Managerial Implications

Strengthening Malaysia's human resource development (HRD) ecosystem requires policies that directly link training initiatives with measurable productivity outcomes. Institutional coordination among the Ministry of Human Resources (MOHR), Ministry of Higher Education (MOHE), and Ministry of Education (MOE) must be improved to avoid program overlap and ensure efficient resource allocation. Establishing a central coordination mechanism or productivity-focused task force could align HRD strategies with national economic priorities.

To enhance firm-level productivity, the government should introduce incentives for SME upskilling and stronger industry education partnerships. Such collaboration ensures that training programs reflect real

market needs and yield measurable productivity gains. Additionally, integrating TVET-to-higher education pathways can motivate participation by improving social recognition and creating upward mobility for technical graduates. Digitalisation and lifelong learning must remain central pillars of HRD reform. Expanding access to digital skills programs under MyDIGITAL and Industry4WRD initiatives will improve labour efficiency, while continuous reskilling programs can mitigate the risks posed by technological disruption and an ageing workforce.

Finally, inclusive HRD policies are essential for maximising Malaysia's productive potential. Targeted initiatives for women, rural communities, and persons with disabilities can broaden labour participation and contribute to equitable productivity growth. A productivity-oriented HRD framework that integrates inclusivity, coordination, and innovation will strengthen Malaysia's competitiveness in its transition to a high-income economy.

6. Limitations and Future Research Agenda

While this paper provides a comprehensive synthesis of Malaysia's human resource development (HRD) policies and their relationship with productivity, several limitations must be acknowledged. Recognising these constraints is essential for guiding future research that seeks to deepen empirical understanding and strengthen the policy practice interface.

The first limitation concerns the literature-only design of the review. The analysis relied primarily on secondary data from academic publications, policy documents, and institutional reports. Although this approach offers a broad overview of HRD trends and productivity dynamics, it does not capture the full complexity of implementation realities at firm or sectoral levels. Future research should incorporate empirical fieldwork, case studies, or longitudinal surveys to assess the real productivity impact of HRD interventions on workers and enterprises. Second, the temporal scope of the review (2018-2023) limits its ability to track long-term productivity trajectories. Malaysia's HRD landscape is continuously evolving through new industrial strategies, digital transformation initiatives, and post-pandemic labour reforms. Longitudinal studies are needed to examine how sustained investments in HRD translate into productivity improvements over time and across economic cycles. Such research would enable policymakers to identify which programs yield the highest productivity returns and under what conditions. Third, the review acknowledges potential biases in policy documents and official reports. Government publications often emphasise intended outcomes rather than empirical performance, leading to optimistic interpretations of HRD effectiveness. Future research could triangulate policy claims with independent data sources, firm-level productivity indicators, and worker experiences to provide a more balanced assessment. A fourth limitation involves the measurement of productivity itself. Different studies use varying indicators labour productivity, total factor productivity (TFP), or organisational performance making direct comparison challenging. There is an urgent need to develop a standardised framework for measuring HRD-linked productivity outcomes that can be applied consistently across institutions and sectors.

Building on these limitations, several avenues for future research are proposed:

- Longitudinal impact evaluations of HRD and TVET programs to determine sustained effects on workforce productivity and innovation.
- Experimental or quasi-experimental studies testing behavioural interventions that influence training participation and productivity attitudes, particularly among youth and SMEs.
- Return-migration and re-skilling evaluations, focusing on the productivity potential of Malaysian talent abroad and mechanisms for reintegration into domestic industries.
- Digital skills measurement and ROI assessments, quantifying the productivity gains derived from MyDIGITAL and Industry 4.0 initiatives.
- Institutional effectiveness studies, examining how coordination between MOHR, MOHE, MOE, and HRD Corp impacts productivity-driven HRD governance.

Future studies that combine quantitative and qualitative methodologies will be crucial to advancing Malaysia's HRD productivity evidence base. Rigorous impact evaluation and productivity analytics can support evidence-based policymaking and ensure that HRD remains a central engine for national transformation.

7. Conclusion

This paper has examined the evolution of human resource development (HRD) in Malaysia and its critical linkage to national productivity performance. The review synthesised evidence from policy documents, institutional frameworks, and academic sources spanning foundational studies to recent initiatives under the 12th Malaysia Plan and MyDIGITAL Blueprint. Through this analysis, the study demonstrated that Malaysia's HRD system has undergone significant transformation from capacity-building and training-oriented models to a more strategic, productivity-centred approach.

The findings highlight that productivity enhancement must become the central criterion for HRD policy effectiveness. Traditional indicators such as training participation, certification counts, and budget utilisation no longer suffice to gauge success. Instead, HRD policies and programs should be evaluated based on measurable productivity gains at the individual, organisational, and national levels. Skills development is productive only when it translates into innovation, efficiency, and higher output per worker. Key challenges persist, including skills mismatch, limited TVET attractiveness, weak coordination among ministries, and the outflow of talent abroad. These structural constraints reduce Malaysia's potential to achieve a high-income economy grounded in productivity-led growth. However, recent institutional reforms particularly the establishment of the National TVET Council, enhancement of HRD Corp's role, and the digitalisation initiatives of MyDIGITAL represent strong steps toward a more coherent HRD-productivity framework.

The review also underscores the need for inclusive HRD strategies that harness the full potential of Malaysia's diverse workforce. Ensuring equal access to reskilling and upskilling opportunities, particularly for women, rural populations, and older workers, not only promotes equity but also expands the effective labour force contributing to productivity. Productivity growth and inclusivity are mutually reinforcing goals that together underpin sustainable national development. From a policy standpoint, Malaysia's future HRD strategy must focus on three priorities: (1) strengthening governance integration across ministries and industry partners, (2) embedding productivity metrics in all HRD evaluation systems, and (3) institutionalising continuous learning pathways from TVET to higher education. A productivity-driven HRD framework will not only sustain economic resilience but also enable Malaysia to compete effectively in an innovation-based global economy. In essence, this paper contributes a synthesised understanding of how HRD functions as both a means and a measure of productivity. The conceptual framework and policy recommendations presented here aim to inform decision-makers, industry leaders, and researchers seeking to enhance the impact of HRD on Malaysia's long-term productivity trajectory. Sustained investment in human capital guided by productivity outcomes remains the cornerstone of Malaysia's journey toward inclusive and high-income growth.

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