

Sustainable Human Capital for Gen Z: The AMO Model Approach in the Disruption Era

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Abstract

The objective of this research is to analyse the impact of Ability, Motivation, and Opportunity (AMO) on sustainable human capital strategies with human resource competitiveness as a mediating factor, focusing on Generation Z in Indonesia. A quantitative method was applied along with an explanatory survey approach. Respondents completed a formal online questionnaire based on their employment status as Gen Z workers across Indonesia. Because the population size was unlimited, Hair's formula (10×25 statement items) was used, resulting in a sample size of 250 respondents. SmartPLS 3.0 was used for SEM analysis of the data. Results show that capability and opportunity strongly affect human capital sustainability, both directly and indirectly, whereas motivation affects it solely indirectly through competitiveness. Competitiveness acts as an essential mediator, enhancing the impact of AMO on enduring workforce results. The research emphasises that sustainable human capital cannot be attained by enhancing ability, motivation, or opportunity separately, but instead necessitates competitiveness as the fundamental mechanism. This study improves the AMO framework by incorporating competitiveness into human capital strategy, providing fresh perspectives for both theory and practice, especially in getting Indonesia's Gen Z workforce ready for a future shaped by innovation and digital change.

Keywords: Sustainable Human Capital; Green Human Resource Management; AMO Model; Competitiveness; Disruption Era;

Introduction

Changes in global work structures due to digital transformation, artificial intelligence, data-based economy, work automation, and the industrial revolution 4.0 have created significant changes and new challenges for every organisation in formulating a human resource management (HRM) strategy, so it is necessary to develop an effective and sustainable human resource strategy for future situations. Companies or organisations are required to build a workforce development system in technological adaptation, organisational flexibility, and sustainable innovation, while

emphasising the importance of efficient and sustainable human resource competitiveness (Magnaghi, E., & Veglianti, n.d.).

In the current digital era, Generation Z is very closely related to the use of technology. This generation is shaped by digital technology, allowing them to adapt to rapid change and uphold values such as sustainability, flexibility, and work-life balance. Today, Generation Z (Gen Z) is starting to dominate the workforce population and play a crucial role in the transformation of the workforce. According to Pierre Rainer (2023) the Gen Z population aged 15-28 years has reached 74.93 million people, making Gen Z the largest group in the labor force in Indonesia. The Central Statistics Agency (BPS) estimates that Gen Z will reach the peak of productivity around 2030 to 2045 and become the main driver of the national workforce by 2045, and play a role as the main driver of the Indonesian economy (Naufalihsan, 2025)

However, the presence of Generation Z in the workplace presents new challenges that are difficult to overcome with conventional management methods. As a generation raised with technology, Gen Z wants work flexibility, career opportunities, and involvement in the decision-making process (Parinsi et al., 2023; Popaitoon, 2022) Today, some companies still operate with hierarchical structures, a lack of understanding of technology, and a lack of open-mindedness, resulting in low employee engagement, high turnover rates, and decreased work productivity (Ong & Mahazan, 2020). This situation is a complex challenge due to the difference in perspective between what Gen Z wants and the company's readiness to respond to developments in the era of disruption, which will have an impact on sustainable human resource strategies.

In addition, the issue of human resource management in Indonesia is also dominated by low labour quality, a lack of digital training, and an imbalance in the distribution of human resources in various regions (World Bank, 2023). As a result, most of the workforce is not ready to face the rapidly growing challenges of digitalisation and automation, thereby reducing productivity, sustainability, and hindering the regeneration of quality human resources. Therefore, the sustainability of human resources in Indonesia is highly dependent on the ability of the HR system to design training strategies, work motivation, and provide space for development, especially for Gen Z.

On the other hand, Generation Z also faces challenges in the competitiveness aspect of HR due to low skills, such as complex problem-solving, critical thinking, and emotional intelligence (Fleeton, 2024). The gap between Gen Z's skills and the demands of the industry today results in low human resource competitiveness, which will ultimately affect Sustainable Human Resources in the long run. The lack of Gen Z involvement in the decision-making process in the workplace negatively impacts work motivation and loyalty to the organisation, causing organisations to lose opportunities to develop future leaders (Messi Agmasari, 2022)

Companies are required to build an HR system that focuses on innovation and sustainable self-development, as well as implement a human resource management strategy with the AMO model (Ability, Motivation, Opportunity) approach (Soekotjo

et al., 2025). The AMO framework developed by (Bos-Nehles et al., 2023)(2023) explains that the performance of employees in the company is influenced by abilities, motivation, and opportunities, thus enabling the company to create superior and sustainable human resources. Research conducted by Tunio et al.(Tunio et al., 2023) shows that the application of the AMO method can encourage employee engagement and produce innovative and adaptive human resource management systems, particularly for Generation Z. However, there is still a lack of research that examines explicitly how AMO approaches, competitiveness, and sustainable human resources are interrelated, with a focus on Generation Z in Indonesia.

This research provides novelty in testing the three elements of the AMO model to answer the needs of human resources in the future that are in line with the characteristics of Gen Z by combining three main components that are single variables in the framework of human resource development, namely ability, motivation, and opportunities (AMO), and strengthened by competitiveness as a mediator in strategy. The novelty of this research lies in its emphasis on Gen Z as the key group that will contribute to the workforce of the future, and in providing new insights for the development of AMO theory in the context of a digital-based workforce.

Based on the above background, it was formulated whether there is an influence of ability, motivation, and opportunity (AMO) on sustainable human resource strategies with competitiveness as an intervention or mediation variable among Gen Z in Indonesia. This study aims to determine the influence of ability, motivation, and opportunities (AMO) on sustainable human resource strategies with competitiveness as a mediating variable among Gen Z in Indonesia.

Theoretical Framework

AMO Model

The Ability-Motivation-Opportunity (AMO) model in human resource management (HRM) is a theoretical framework that links HR practices with employee performance. This model posits that organisational performance is contingent on employees' ability, motivation, and the opportunities afforded to them to perform their roles, emphasising the complexity of HRM practices and their multifaceted impact on overall organisational effectiveness. The application of AMO within the context of high-performance work systems (HPWS) has been explored extensively. HPWS includes practices aimed at fostering employee involvement and commitment and is seen as instrumental in enhancing the components of the AMO model. For example, organisations employing HPWS achieve higher productivity when they effectively enhance employees' abilities, motivation, and opportunities to contribute (Agirre-aramburu et al., 2024). This effect is particularly pronounced when these practices are aligned with strategic goals and job demands, establishing a direct link between HRM practices and organisational performance(Li et al., 2021).

Research also suggests that the AMO model is a valuable lens for analysing contemporary issues in HRM, such as integrating sustainability initiatives within HR practices. The AMO framework provides insights into how organisations can develop employees' capabilities related to sustainable practices, encourage motivation for pro-

environmental behaviour, and create opportunities for engagement in green initiatives (Tunio et al., 2023). This intersection between AMO and green HRM reflects an evolving understanding of the factors that drive performance while addressing corporate social responsibility mandates (Renwick et al., 2013).

Additionally, empirical evidence supports the notion that each component of the AMO model plays a unique role in driving performance outcomes. Recent studies have highlighted the mediating effects of employee voice behaviour and knowledge sharing as outcomes of AMO-enhancing HR practices (Naqshbandi et al., 2024). By fostering a culture that promotes opportunities for feedback and collaborative work, organisations can leverage employee insights to encourage continuous improvement and innovation. In conclusion, the AMO model serves as a foundational framework for understanding the interplay between HR practices and sustainable human resource performance. It situates ability, motivation, and opportunity as interdependent pillars that drive employee engagement and productivity. As research progresses, the model continues to adapt, encompassing contemporary challenges and integrating practices that address organisational sustainability and innovation.

H₁: Ability influences Sustainable Human Capital

H₂: Motivation influences Sustainable Human Capital

H₃: Opportunity influence Sustainable Human Capital

Competitiveness

The theoretical framework of competitiveness can be examined through the Ability-Motivation-Opportunity (AMO) model, which has significant implications for understanding how human resource management (HRM) practices interact with employee performance and, by extension, competitive advantage in organisations. A central tenet of this framework is that HRM practices that enhance these three components create a conducive environment for higher employee performance. Ability-enhancing practices can involve training and skill development, motivation-enhancing practices may include performance incentives, and opportunity-enhancing practices might leverage participative work environments that encourage employee input and engagement. It has been shown that organisations that strategically implement these HR practices tend to experience improved performance outcomes that contribute to their competitive positioning in the market (Al-Shahwani, 2020).

Research demonstrates that the integration of AMO-based HRM practices can lead to sustainable competitive advantages. The alignment of HR practices with organisational goals enhances workforce capabilities and contributes to an engaged and committed employee base (Bos-Nehles et al., 2023; Hassan et al., 2020). This is particularly critical in a competitive landscape, as firms that invest in their human capital tend to outperform their rivals by fostering innovation, adaptability, and productivity.

Moreover, empirical studies underline the dynamic interplay among the components of the AMO model. For instance, the motivation component often acts as a mediator between ability and opportunity, influencing how well employees

capitalise on their abilities when opportunities are present (Bos-Nehles et al., 2023; Li et al., 2021). The relationships established within the AMO model illustrate that simply enhancing one component in isolation will not yield optimal benefits; instead, a cohesive strategy that considers all three facets must be employed (Kremmydas & Austen, 2020).

The AMO framework has also been integrated into discussions surrounding green HRM practices, indicating its versatility in applying to modern themes such as corporate sustainability. Companies focusing on environmental performance have turned to the AMO model to assess their HRM strategies to foster a workforce skilled and motivated toward achieving sustainable outcomes while simultaneously providing them with the necessary opportunities in their roles (Renwick et al., 2013). In conclusion, the AMO model provides a robust theoretical framework for examining the competitiveness of organisations through the lens of HRM practices. By understanding the interrelated nature of ability, motivation, and opportunity, organisations can better strategies their HR functions to enhance employee performance and attain competitive advantages in increasingly challenging market environments.

H₄: Ability influences Competitiveness

H₅: Motivation influences Competitiveness

H₆: Opportunity influence Competitiveness

H₇: Competitiveness Influences Sustainable Human Capital

Sustainable Human Capital

Sustainable Human Capital emphasises the integration of human capital development with sustainable practices. Central to this discourse is the acknowledgment that human capital consists of skills, knowledge, and experiences. Sustainable Human Capital plays a pivotal role in facilitating sustainable economic development and organisational success through investments in education, skills training, and professional development, which yield substantial returns in terms of productivity and financial outcomes. Studied by Ortiz et al. (Ortiz et al., 2025) examined the perceptions of business students regarding human capital and its alignment with Sustainable Development Goal (SDG) 8, highlighting the role of human capital in promoting inclusive and sustainable economic growth and informing policymakers and organisational leaders on the critical dimension of developing human resources as a pathway to sustainable performance.

Moreover, the AMO Model elaborates on how enhancing employees' abilities, motivations, and opportunities influences sustainable competitive advantage (Al-Shahwani, 2020). A study shows that implementing AMO-enhancing HR practices can significantly affect sustainable competitive advantage, underscoring the interdependence of these elements. This framework reinforces the idea that human capital development is not an isolated endeavour but is intrinsically linked to broader organisational strategies aimed at achieving sustainability.

H₈: Ability influences Sustainable Human Capital Through Competitiveness as Intervening

H₉: Motivation influences Sustainable Human Capital Through Competitiveness as Intervening

H₁₀: Opportunity Influence Sustainable Human Capital Through Competitiveness as Intervening

Conceptual Framework

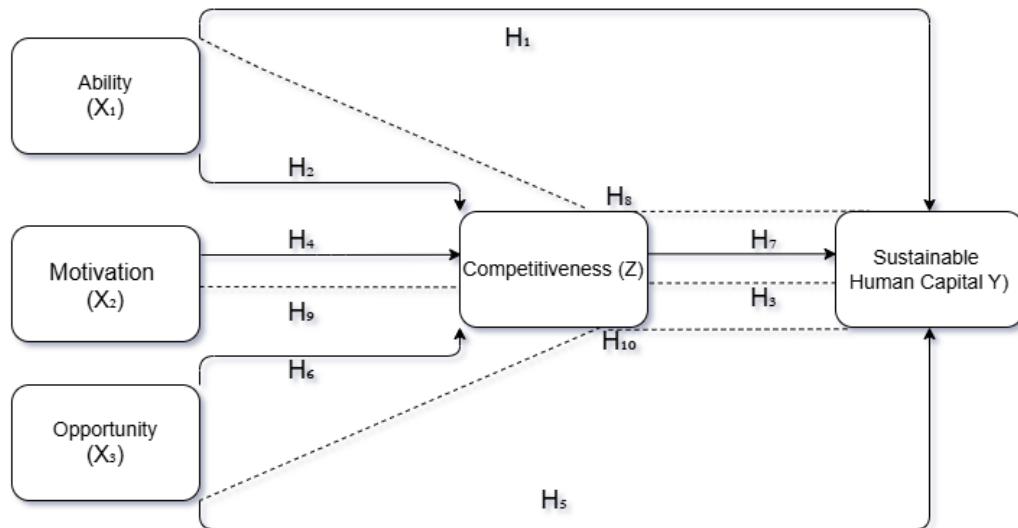


Figure 1. Conceptual Framework

Method

This research uses a quantitative approach with explanatory surveys aimed at empirically assessing the cause-and-effect relationships between variables using primary data. This method is used because it can provide an understanding of the influence of the variables' ability (X₁), motivation (X₂), and opportunity (X₃) on the sustainable human capital strategy (Y), as well as its impact on the competitiveness of human resources in the disruption era (Z).

Table 1. Variable Measurement

Variable	Dimension s	Indicators	Variable Measure ment Scale	Adoption
X ₁ : Ability	1. Training and development 2. Qualifications and	1. Relevant training programs 2. Experience 1. Educational background	Ordinal	(Ilham, 2022)(Sirait et al., 2025)(Rama et al., 2021)

certificatio
ns

		2. Certificatio ns obtained	Ordinal	
$X_2:$ Motivation	1. Rewards	1. Financial compensation	Ordinal	(Thapa, 2020)(Halimahtussy akdiah & Wiska, 2024)(Mayroza, Hasibuan, 2024)(Ercegović, 2024)
	2. Job satisfaction	2. Non-financial compensation	Ordinal	
$X_3:$ Opportunity	1. Participatio n in decision making	1. Job alignment with interests	Ordinal	
		2. Supportive work environment	Ordinal	
$Z:$ Competitive ness	1. Organisati onal support and resources	1. Team Collaboration	Ordinal	(Caniëls et al., 2019)(S & Joyce, 2025)(Tian & Zhai, 2019)
		2. Involvement in work planning	Ordinal	
	2. Organisati onal support and resources	1. Employee welfare	Ordinal	
		2. Organisational structure	Ordinal	
	1. Core competencies	1. Professional skills	Ordinal	(Tian & Zhai, 2019)
		2. Specific	Ordinal	(Neto et al., 2022) (Hamid, 2022)

		knowledge		
2.	1. Ability to operate new technology	Ordinal		
Technologi cal Adaptabilit y	2. Responsive ness to change	Ordinal		
Y: Human Capital Sustainabilit y	1. Continuou s competenc y developme nt	1. Ongoing training and learning	Ordinal	(Mustafa & Lueshi, 2024) (Bocean et al., 2023)(Foster et al., 2023)
	2. Work balance and resilience	2. Skill upgrading 1. Work-life balance	Ordinal	
		2. Resilience under pressure	Ordinal	

Source: Primary data processed 2025

The research was conducted in Indonesia. The determination of the research location was conducted purposively to reflect the diversity of respondents' occupations and geographical distribution, considering that Generation Z is a generation that is widely involved in various sectors. The research period is from February to June 2025.

Primary data is used in this research. Data collection was conducted through the distribution of online questionnaires using Google Forms with a Likert scale of 1 to 5, ranging from strongly disagree to agree strongly. The population in this study is all Generation Z individuals aged 15 to 28 years who are currently or have previously worked in formal and organised employment. Because the exact size of the population is not known, the sample size is determined using the formula, which is multiplied by 10 times the number of statement items (Hair et al., 2017), resulting in 25 statement items multiplied by 10 = 250. Based on the Hair formula calculation, the sample size taken in this study is 250 respondents. The sampling technique used was purposive sampling, characterised by Gen Z respondents aged 15 to 28 years, who have worked for at least 1 year, and are in the formal employment sector.

Data were analysed using the Structural Equation Modeling (SEM) method based on Partial Least Squares (PLS) with the SmartPLS 3.0 software. SEM-PLS was chosen because it can test the relationships between constructs. The analysis was conducted in two stages, namely the outer model test to assess the construct validity and indicator reliability, and the inner model test to examine the direct or indirect influence and the mediating role of human resource competitiveness in the relationship between the AMO approach and the Sustainable Human Capital strategy.

Results

Characteristics Respondents

This study consisted of 250 respondents, with the respondent criteria being Generation Z aged 15 to 28 years old and currently or previously working.

Table 2. Respondent Demographics

	Frequency	Percent
Respondent's age		
15-20 years	29	11,6%
21-28 years	221	88,4%
Gender		
Female	133	53,2%
Male	117	46,8%
Respondent's occupation		
Private employee	91	36,3%
Content Creator	13	5,2%
Work experience duration		
1 year	107	42,8%
More than 3 years	46	18,4%

Source: Primary data processed 2025

In this study, there were 250 respondents with the criteria of being Gen Z aged between 15 and 28 years, currently or previously employed. This result was obtained based on the maximum and minimum outlier data. Based on age, the majority of respondents are aged 21-28 years, totaling 221 people (88.4%). Based on gender, females dominate with a total of 133 people (53.2%). Regarding domicile, the majority of respondents come from the island of Java, with 180 people, accounting for 87.6%. A portion of the respondents work as private employees, totaling 91 people, with a percentage of 36.3%. Based on years of work experience, 107 respondents, or 42.8%, have one year of work experience. These findings provide an overview of the diverse demographic backgrounds and support this research.

Outer Model

The outer model test aims to evaluate the indicator quality in the latent evaluation process of the study. This test has three core components – convergent validity, construct reliability, and discriminant validity. Convergent validity is measured by evaluating outer loading values, which need to be greater than 0.70, and the Average Variance Extracted (AVE) value needs to be greater than 0.50. Construct reliability determines the internal

consistency of indicators using the Composite Reliability (CR) coefficient and Cronbach's Alpha, which both need to be greater than 0.70. Discriminant validity requires the square root of AVE to be divided by the correlation of the constructs. The model is deemed acceptable for measurement as long as all indicators satisfy the requirements. The image below shows the outcomes of the outer model test conducted in this research.

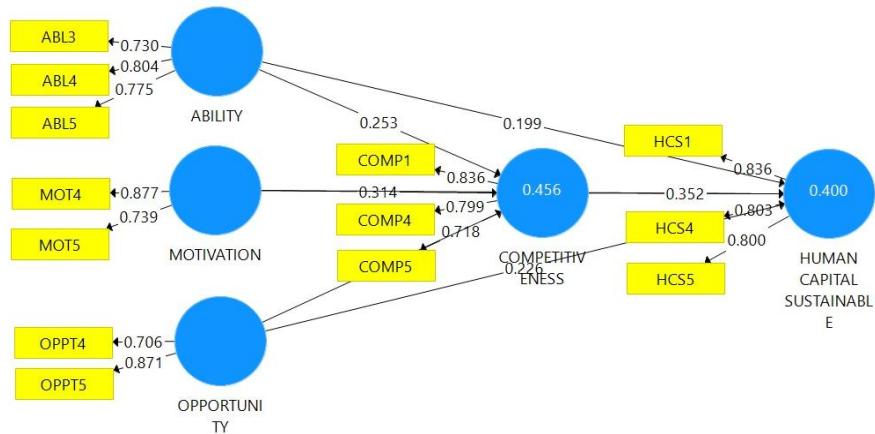


Figure 2. Outer Model

Convergent Validity

The convergent validity test is conducted to measure the extent to which the indicators of a construct are positively correlated with each other. In this test, an indicator is considered valid if its outer loading value is more than 0.70. The process of convergent validity testing is carried out through an elimination stage for indicators with outer loadings values below 0.70 according to the requirements. After this elimination process, only the indicators that meet the minimum threshold are retained, so that all final indicators have outer loadings values of more than 0.70, as shown in the following table:

Table 3. Convergent Validity

	ABILITY	MOTIVATION	OPPORTUNITY	COMPETITIVENESS	SUSTAINABLE HUMAN CAPITAL
ABL3	0.730				
ABL4	0.804				
ABL5	0.775				
MOT4		0.877			
MOT5		0.739			
OPPT4			0.706		
OPPT5			0.871		
COMP1				0.836	
COMP4				0.799	
COMP5				0.718	
HCS1					0.836

HCS4	0.803
HCS5	0.800

Source: Primary data processed 2025

Based on the data processing results using SmartPLS, all indicators on the variables Ability (X_1), Motivation (X_2), Opportunity (X_3), Competitiveness (Z), and Sustainable Human Capital (Y) show loading factor values above the established threshold, which is above 0.70. This indicates that all indicators have met the requirements for convergent validity and are suitable to proceed to the next stage of analysis.

Discriminant Validity (Fornell-Larcker Criteria)

The discriminant validity test is conducted to ensure that each construct in the model does not overlap with the others. The Fornell-Lacker method states that the square root of the AVE (Average Variance Extracted) value of each construct must be higher than the correlation with other constructs.

Table 4. Discriminant Validity

ABILIT Y	COMPETITIVEN ESS	SUSTAINAB LE HUMAN CAPITAL	MOTIVATI ON	OPPORTUNI TY
ABILITY	0.770			
COMPETITIVEN ESS	0.537	0.786		
SUSTAINABLE HUMAN CAPITAL	0.480	0.567	0.813	
MOTIVATION	0.512	0.559	0.377	0.811
OPPORTUNITY	0.444	0.520	0.491	0.417
				0.793

Source: Primary data processed 2025

The results of the discriminant validity analysis show that the AVE root values for each variable, which consist of Ability (0.770), Motivation (0.811), Opportunity (0.793), Competitiveness (0.786), and Sustainable Human Capital (0.813), exceed all other construct correlations. The results show that all constructs in the model have sufficient discriminant validity compared to other constructs and demonstrate a better ability to explain each indicator variable compared to other constructs, and it can be concluded that the model meets the criteria for discriminant validity.

Cronbach's Alpha and Composite Reliability

To test the construct reliability, two indicators are used: Cronbach's Alpha and Composite Reliability. The acceptable value for both indicators is more than 0.70.

Table 5. Cronbach's Alpha and Composite Reliability

Cronbach's	rho_A	Composite	Average
			Variance

	Alpha	Reliability	Extracted (AVE)
ABILITY	0.660	0.668	0.813
COMPETITIVENESS	0.688	0.695	0.828
SUSTAINABLE	0.745	0.749	0.854
HUMAN CAPITAL			
MOTIVATION	0.491	0.527	0.793
OPPORTUNITY	0.422	0.457	0.770

Source: Primary data processed 2025

The reliability test results indicate that every construct in this model has a Composite Reliability of 0.70 and an AVE of 0.50, indicating that this research instrument has good internal consistency and convergent validity. Even though the Cronbach's Alpha value for the variables Motivation and Opportunity is below 0.70, the Composite Reliability value is still relatively high. Accordingly, all of the indicators in this study are reliable and can be used for further analysis.

Inner Model

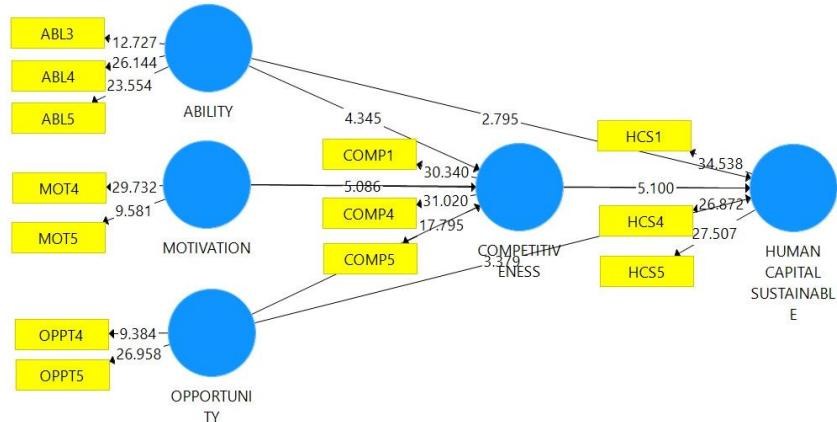


Figure 3. Inner Model

The inner model is used to test the relationships between latent variables in a structural model. The inner model testing is conducted through the bootstrapping method in SmartPLS to observe the significance of the relationships between constructs, whether direct effects, indirect effects, or total effects, based on the t-statistic and p-value.

Table 7. Hypothesis Testing

Relationship	t-table	T Statistics	P Values	Decision	Description
ABILITY -> COMPETITIVENESS	1.969	4.365	0.000	Reject H ₀	Significant on $\alpha = 0.05$
ABILITY ->	1.969	4.110	0.003	Reject H ₀	Significant on

SUSTAINABLE HUMAN CAPITAL						$\alpha = 0.05$
COMPETITIVENESS -> SUSTAINABLE HUMAN CAPITAL	1.969	5.172	0.000	Reject H_0	Significant on $\alpha = 0.05$	
MOTIVATION -> COMPETITIVENESS	1.969	5.294	0.000	Reject H_0	Significant on $\alpha = 0.05$	
MOTIVATION -> SUSTAINABLE HUMAN CAPITAL	1.969	1.365	0.813	Accept H_0	No significant on $\alpha = 0.05$	
OPPORTUNITY -> COMPETITIVENESS	1.969	5.616	0.000	Reject H_0	Significant on $\alpha = 0.05$	
OPPORTUNITY -> SUSTAINABLE HUMAN CAPITAL	1.969	4.817	0.001	Reject H_0	Significant on $\alpha = 0.05$	

Source: Primary data processed 2025

The results of the hypothesis testing:

A significant relationship was found in six out of the seven relationships that were investigated. These findings suggest that, particularly for the current working age, the AMO model's three main components (Ability, Motivation, and Opportunity) are crucial for fostering workforce sustainability and competitiveness. Incentives mustn't adversely impact the sustainability of human resources. Therefore, indirect techniques or effects through intervening variables, like competition, must be taken into consideration when establishing sustainable human capital development plans.

Indirect Effects

The indirect effects test aims to determine whether an independent variable can influence a dependent variable through a mediator variable. This analysis is conducted using the bootstrapping method on SEM-PLS, allowing us to identify influences that are not directly observable but statistically significant.

Table 8. Hypothesis Testing

	T Statistics (O/STDEV)	P Values	Decision
ABILITY -> COMPETITIVENESS -> SUSTAINABLE HUMAN CAPITAL	3.580	0.000	Reject H_0
MOTIVATION -> COMPETITIVENESS -> SUSTAINABLE HUMAN CAPITAL	3.591	0.000	Reject H_0
OPPORTUNITY -> COMPETITIVENESS -> SUSTAINABLE HUMAN CAPITAL	3.851	0.000	Reject H_0

Source: Primary data processed 2025

The mediation analysis's findings demonstrate that through Competitiveness (Z), Ability (X_1), Motivation (X_2), and Opportunity (X_3), all significantly influence Human Capital Sustainability (Y). Ability increases labor competitiveness, which in turn improves sustainability ($t = 3.580$, $p < 0.001$). Although motivation has no direct

effect on sustainability, competitiveness acts as a mediator ($t = 3.591$, $p < 0.001$). The same is true for possibilities offered by firms, which boost competitiveness and sustain human capital ($t = 3.851$, $p < 0.001$). These findings demonstrate that competitiveness plays a crucial mediating role between AMO components and Gen Z's sustainable human capital development.

R Square

R-squared (R^2) is a statistical measure that indicates how well a regression model explains the variability in the data.

Table 9. R Square

	R Square	R Square Adjusted
COMPETITIVENESS	0.456	0.449
SUSTAINABLE	0.400	0.390
HUMAN CAPITAL		

Source: Primary data processed 2025

Goodness Of Fit

The Goodness of Fit (GoF) test is conducted to measure the overall suitability of the model or how well the structural model fits the observed empirical data.

Table 10. Goodness of Fit

	AVE	R Square
ABILITY	0.593	
COMPETITIVENESS	0.617	0.456
SUSTAINABLE HUMAN	0.662	0.400
CAPITAL		
MOTIVATION	0.658	
OPPORTUNITY	0.629	
AVE	0.5265	0.428

Source: Primary data processed 2025

$$GoF = \sqrt{average\ AVE \times average\ R\ Square}$$

$$GoF = \sqrt{0.5265 \times 0.428} = \sqrt{0.22513}$$

$$GoF = 0.4745$$

Validity and reliability tests, including convergent validity, discriminant validity, and composite reliability validated confirmed that all constructs met statistical requirements. Further, GoF indicated that, with a value of 0.4745, the suggested model is empirically valid and corresponds to the observed data.

Discussion

This study shows that the AMO model framework (skills, motivation, and opportunities) provides an essential foundation for building a competitive and sustainable Generation Z workforce in Indonesia. Capabilities, expressed in terms of digital skills, adaptive learning, and skills certification, improve the sustainability and competitiveness of the workforce. Motivation, while not directly improving the sustainability of HCS, further supports competitiveness, motivating engagement, and organizational commitment, as mentioned in Self-Determination Theory (Lee, D., & Ahn, 2024). Opportunities play a critical role in improving competitiveness and sustainability by driving innovation and loyalty through organizational inclusive decision-making and support for Generation Z employees (Palupiningtyas et al., 2022).

The results show that ability (X_1) is significantly and positively related to sustainable human resources (Y). This implies that the higher the level of training, relevant experience, and digital competence among Generation Z workers, the more they contribute directly to making human resources sustainable. Therefore, human resources play a crucial role in driving sustainable business practices. Research by Shen et al. (2021) shows that human resources significantly affect the sustainable growth of businesses. These findings are in line with the idea that improving individual capabilities can lead to improved decision-making processes, which in turn nurture the sustainable development of human resources. Effective capabilities are critical to driving innovation, thereby strengthening the relationship between the ability to discuss results and sustainable human resources.

In addition, several studies outline how human resource management strategies are essential for sustainable economic development. The study by Bashtannyk et al (2025) affirms that sustainable human resources are an integral part of achieving green growth, in line with broader economic development goals. It shows that organizations that leverage these capabilities in their operations can drive the sustainable development agenda by fostering an environment conducive to human resource improvement. Furthermore, research by Istikhoro (2025) confirms that effective human resource management significantly affects organizational sustainability, supporting the argument that being skilled about outcomes can lead to more informed and effective human resource development strategies.

The results of the study show that X_2 motivation does not influence sustainable human resources (Y). These findings suggest that sustainable human resources gain more with motivation, both intrinsic and extrinsic, which may stem from incentive appreciation, goal-oriented engagement, and career advancement prospects. The literature shows that motivated workers tend to be more active, imaginative, and long-lasting, which contributes indirectly to the sustainability of the organization (Rabiul et al., 2024; Shoaib et al., 2021). These findings are in line with the Job Demands-Resources (JD-R) theory, which suggests that the motivational process is essential for encouraging sustainable employability, which ultimately influences employee performance and subjective career success. In addition, the elements of motivation and human resource development are interconnected, as a strong motivational framework

catalyzes better outcomes in human resource development, supported by the relationship between strategic alliances and human resource growth.

Opportunities (X_3) have an impact on sustainable human resources (Y) either directly or indirectly. Corresponding to opportunities for decision access, role rotation, and organizational support increases human resource productivity, as well as strengthens competitiveness and sustainability. It supports the idea that in digitally impacted economies, strong organizational support is needed to cultivate adaptable and nurture-ready talent (Jiang et al., 2023). Preliminary studies illustrate how human resources play a mediating role in improving environmental, social, and governance (ESG) practices in the manufacturing sector. These relationships are critical to fostering the development of regional labor markets, where knowledge and competence in sustainable practices can lead to strong job creation and increased economic resilience. An effective environmental preservation strategy promotes workforce development and aligns with broader corporate social responsibility goals that are essential for the sustainable improvement of human resources (Popova, 2023).

The comprehensive analysis highlights the essential role capabilities play, especially as they relate to employee competence, organizational agility, and innovation, in fostering an environment conducive to competitive success. Research by Manyu & Adiputra (2023) underscores an essential relationship between work competencies and competitive advantage, confirming that employee capabilities significantly improve organizational performance and lead to a noticeable improvement in a company's competitive position. Organizations with superior resources and competencies—especially those derived from human resources—are better positioned to outperform competitors, reinforcing the premise that employee skills and organizational capabilities are essential drivers of competitive advantage. In addition to individual competence, technological capabilities also play an indispensable role in increasing competitiveness. The study conducted by Tong et al. (2022) emphasizes that core technology competencies are fundamental for high-tech companies, facilitating innovation and operational efficiencies that serve as critical competitive differentiators. The findings corroborate Human Resource Theory, which states that the ability and adaptability of the workforce in the long run are improved through investment in education, training, and professional development. These findings are in line with Banmairuoy et al. (Banmairuoy et al., 2022) in emphasizing that capability-based development approaches contribute to improving competitiveness and sustainability when integrated into strategic HR programs.

Motivation plays an essential role in the context of sustainable human resources, influencing employee behavior, engagement, and overall organizational sustainability efforts. The interaction between motivation and competitiveness is an essential determinant of individual and organizational performance in various domains, including education, sports, and business. Understanding how different motivational factors affect competitiveness can help organizations foster an environment that encourages employee engagement and competitive success. Research shows that competitive motivation can lead to a spectrum of outcomes, highlighting both positive and negative aspects. Positive feedback plays an essential role in increasing intrinsic

motivation, which is essentially related to improved performance and competitiveness. This study is in line with the principles of self-determination theory (SDT), confirming that satisfying basic psychological needs, especially the need for competence, increases motivation levels, leading to increased competitive behavior and success. Thus, organizations or teams that take advantage of positive reinforcement can foster a motivated atmosphere that encourages increased competitiveness (Liu et al., 2022)

The relationship between opportunity and competitiveness is an important area of study in understanding how businesses can build and maintain their position in a competitive market. Opportunities, especially regarding entrepreneurial ventures and resource utilization, play an essential role in increasing competitive advantage and driving economic growth. One of the critical aspects of opportunity identification is rooted in human resources. The perception of opportunity is significantly influenced by individual human resources, which in turn correlates with the activities of the organization.

The relationship between competitiveness and sustainable human resources is critical to driving long-term organizational performance and resilience. As companies increasingly recognize the interaction between these factors, understanding how competitiveness affects ongoing human resources becomes essential for formulating effective human resources strategies. A fundamental element in the relationship between competitiveness and sustainable human resources is the role of strategic human resource management (SHRM). Strategic HR practices can significantly improve the quality of human resources and utilize them for a competitive advantage. By implementing high-performance work practices (HPWP), organizations can signal to the labor market their commitment to developing and retaining a skilled workforce, thereby attracting top talent and driving employee retention. This is in line with the principle that sustainable competitive advantage is firmly rooted in a company's ability to grow and utilize its human resources effectively, as highlighted by Karman, who emphasizes the importance of a customized HR system that is difficult for competitors to replicate.

Competitiveness (Z) serves as an important mediating factor for connecting sustainable human resources (Y) and components of the AMO model. The mediation pathway adds the critical idea that ability, motivation, or opportunity alone cannot be used to grow sustainable human resources for the Gen Z workforce; It must be firmly grounded by competitiveness, which relies on these elements to build lasting resilience. These findings contribute to the AMO framework Hasan et al.,(2024) by adding the relevance of empirically verified competitiveness as a fundamental tool for adapting and incorporating employment strategies in a digitally disruptive economic context. Competitiveness serves as the primary channel that integrates the AMO dimension into the sustainable development of human resources. These findings are consistent with the Resource-Based View (RBV) perspective, which asserts that competitive and unique workforce capabilities serve as the basis for long-term organizational excellence (Barua, 2021). This study adds novelty by placing the AMO

model in the context of Indonesia's Gen Z workforce, incorporating competitiveness as a mediating variable, an area rarely examined in local or international research.

Conclusion

This study is conducted to see how the AMO strategy, which includes ability, motivation, and opportunity, impacts the sustainability of human capital for Indonesia's Generation Z during the disruption era. Specifically, this study will determine the effect of sustainable human resource strategies on workforce competitiveness. A quantitative approach with PLS-SEM was implemented on 250 Gen Z respondents, and results indicated that ability and opportunity have both significant direct and indirect effects on sustainable human capital at $p < 0.05$, while motivation, on the other hand, affects human capital sustainability through competitiveness.

These results suggest that sustainable human capital cannot be achieved via independent improvement of ability, motivation, or opportunity, but competitiveness acts as an important mediator mechanism through which the overall AMO relationship is strengthened to support long-term workforce sustainability. The findings further show that an AMO-based approach is relevant for the long-term development of Generation Z human resources in Indonesia. Employee attributes like flexibility, digital literacy, engagement, and organizational support strongly enable both sustainability and competitiveness. With the possible exception of motivation, while perhaps not affecting human capital sustainability, it does indirectly lead to increasing competitiveness that eventually furthers the long-term development of human resources. The validity and reliability tests confirm all constructs are statistically adequate, while the Goodness of Fit value ($GoF = 0.4745$) verifies the proposed AMO-Competitiveness-Sustainability model is appropriate when applied against empirical data.

Theoretically, this research extends the AMO framework by incorporating competitiveness as a mediating construct and offers a new contribution to the theory of Sustainable Human Resource Management in the digital era. It also reinforces the Resource-Based View (RBV) perspective in emphasizing the idea that workforce competitiveness, grounded in unique human capital capabilities, is the bedrock for sustainable organizational excellence. This study shows that ability, motivation, and opportunity all need to interact in synergy for sustainable human capital development, integrated through competitiveness as the key strategic element.

Practically, organizations should focus on digital upskilling, continuous learning, and performance-based reward systems to enhance motivation, loyalty, and adaptability among Gen Z employees. The fostering of participative decision-making and promoting innovation platforms will further strengthen engagement and competitiveness. Those firms that integrate digital capability building, flexible collaboration, and talent empowerment will be able to create a resilient, future-ready workforce.

Policy makers, take note: these results put a spotlight on the leading role of Generation Z in driving Indonesia's innovation and digital economy. National-level initiatives targeting digital certification, innovation centers, and flexible employment frameworks will be crucial in assuring an agile, competitive, and sustainable workforce resilient to disruption.

This research acknowledges certain limitations, especially its cross-sectional design and limitation in the scope of formal-sector Gen Z workers, which will naturally limit generalizations across time and industries. Suggestions for future research: Longitudinal and cross-sectoral approaches in subsequent studies can be used to better understand how AMO-competitiveness dynamics evolve over time within Indonesia's digital economy. In addition, future researchers could evaluate the inclusion of new variables such as employee engagement, leadership style, digital mindset, or innovation orientation in order to gain a deeper understanding of sustainable human capital formation. It would also enrich the contextual applicability of the AMO framework across different work environments if the samples included informal sectors and creative industries.

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