BUILDING DIGITAL RESILIENCE IN AGRIPRENEURSHIP: INTEGRATING AI-POWERED PSYCHOSOCIAL SUPPORT INTO HUMAN RESOURCE PRACTICES TO MITIGATE LABOUR DISRUPTIONS IN NORTHWEST REGION OF CAMEROON

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Abstract

This study examined AI-powered psychosocial support integration into HR practices for building digital resilience and mitigating labour disruptions in conflict-affected Northwest Cameroon. Data were collected from 370 agripreneurs using a cross-sectional survey. Grounded in Social-Cyber-Physical Systems theory, Job Demands-Resources model, and Technology Acceptance Model, the study employed correlation and regression analyses. Findings revealed significant positive correlations between AI support dimensions and digital resilience, with perceived usefulness strongest ($r = 0.52$, $p < 0.01$). The regression model was significant ($F(4, 365) = 55.96$, $p < 0.001$), explaining 38% of variance in labour disruption mitigation, with perceived usefulness ($\beta = 0.25$) and HR practice integration ($\beta = 0.21$) as strongest predictors ($p < 0.001$). Both null hypotheses were rejected. The study concludes that AI-powered psychosocial support significantly associates with digital resilience and labour disruption mitigation when integrated into HR practices. Recommendations include investing in accessible AI support systems with strong HR integration and developing policies supporting digital psychosocial interventions.

Key words: *Artificial intelligence, Psychosocial Support, Agripreneurship, Labour Disruptions, Digital Resilience, Northwest Cameroon*

Introduction

The agricultural sector constitutes the backbone of Cameroon's economy, employing approximately 70% of the population and serving as the primary livelihood source for rural communities (Madaki et al., 2026). However, the Northwest Region of Cameroon has experienced profound disruptions to its agricultural systems due to the protracted

Anglophone crisis that began in 2016. This conflict has displaced over 700,000 people, resulting in widespread insecurity, infrastructure destruction, and extensive agricultural land abandonment (ibid). The consequences have been devastating: cultivated land per household declined sharply from 4.6 to 1.64 hectares between 2015 and 2022, with migrant households experiencing the most severe losses (Madaki et al., 2026).

The convergence of armed conflict, labour shortages, and weak mechanisation has created a complex crisis for agripreneurs in the region. Farmers face not only physical threats to their safety and livelihoods but also significant psychosocial stressors, including trauma from displacement, anxiety about food security, depression stemming from loss of income and identity, and chronic stress from operating in volatile environments (Thielecke et al., 2025). These mental health challenges directly impair agricultural productivity and workforce stability, creating a vicious cycle of declining agricultural output and deteriorating psychosocial wellbeing.

Simultaneously, technological advances have opened new possibilities for supporting agricultural communities in crisis-affected regions. Digital tools and artificial intelligence are transforming how micro-entrepreneurs operate across Africa, with mobile broadband penetration tripling over the past decade to reach over 527 million subscribers (Nguimkeu & Okou, 2025). Research demonstrates that digital adoption among agripreneurs translates into increased trading frequency and volume, positioning technology as a powerful catalyst for scaling informal enterprises (Nguimkeu & Okou, 2025). However, the potential of AI-powered psychosocial support to address the human resource challenges facing agripreneurs in conflict-affected regions remains underexplored.

The problem this study addresses are twofold. First, agripreneurs in Northwest Cameroon face severe labour disruptions driven by conflict-induced migration, psychosocial distress, and limited access to mental health support. Second, human resource practices in agricultural enterprises have not adapted to integrate digital psychosocial support mechanisms that could build resilience and mitigate labour disruptions. This study therefore investigates how integrating AI-powered psychosocial support into human resource practices can build digital resilience in agripreneurship and mitigate labour disruptions in Northwest Cameroon.

Statement of the Problem

Agripreneurs in Northwest Cameroon operate within a context of unprecedented crisis. The Anglophone conflict has fundamentally disrupted agricultural labour markets, with displacement patterns creating severe shortages of farmworkers and weakening the social ties that traditionally supported agricultural production (Madaki et al., 2026). Research indicates that the loss of a family member during conflict raises the probability of migration by 79%, severing the intergenerational transmission of

agricultural knowledge and labour (ibid). This labour disruption compounds the environmental stressors of desertification and soil fertility decline, further threatening agricultural sustainability.

Compounding these structural challenges is the pervasive psychosocial distress experienced by agripreneurs and agricultural workers. Farmers in conflict-affected regions face elevated risks of depression, anxiety, and burnout due to multiple stressors, including high workloads, family involvement in farm operations, unpredictability of returns, poor physical health, and policy uncertainty (Thielecke et al., 2025). Yet farmers in rural communities are often hesitant to seek help for mental health issues, a reluctance linked to agrarian values, concerns about stigma, personal stoicism, and the perception that seeking support signals weakness (Thielecke et al., 2025). This help-seeking behaviour, combined with limited mental health care availability in rural areas, creates a critical gap in psychosocial support for agricultural workers.

Human resource practices in agripreneurial enterprises have not adapted to address these challenges. Traditional HRM approaches focus on recruitment, compensation, and performance management but rarely incorporate psychosocial support mechanisms. The absence of such support undermines worker retention, productivity, and the overall resilience of agricultural enterprises. While AI-driven solutions are increasingly being deployed in human resource management, research on their application in agricultural contexts, particularly in conflict-affected regions, remains limited (Cewińska, 2025). Furthermore, studies suggest that the effectiveness of AI-powered interventions depends significantly on the interpretive context provided by leadership and organisational culture (Prasetyo et al., 2026).

This study is therefore motivated by the urgent need to develop and evaluate innovative approaches to building resilience in agripreneurship through the integration of AI-powered psychosocial support into human resource practices.

Objectives of the Study

The study is guided by the following objectives:

1. To examine the relationship between AI-powered psychosocial support and the digital resilience of agripreneurs in Northwest Cameroon.
2. To assess the influence of AI-powered psychosocial support integrated into HR practices on mitigating labour disruptions in agripreneurial enterprises in Northwest Cameroon.

Hypotheses

Based on the objectives, the following hypotheses are formulated:

H_{01}: There is no significant relationship between AI-powered psychosocial support and the digital resilience of agripreneurs in Northwest Cameroon.

H_{02}: AI-powered psychosocial support integrated into HR practices has no significant

influence on mitigating labour disruptions in agripreneurial enterprises in Northwest Cameroon.

Literature Review

Digital Resilience

Digital Resilience in agripreneurship refers to the capacity of agricultural entrepreneurs and their enterprises to adapt, recover, and thrive in the face of disruptions through the strategic use of digital technologies. Digital resilience in this study is conceptualised as the capacity of agricultural entrepreneurs and their enterprises to adapt, recover, and thrive in the face of disruptions through the strategic use of digital technologies. This concept encompasses three dimensions:

1. **Adaptive capacity**: The ability to adjust operations, strategies, and behaviours in response to shocks and stressors, utilising digital tools to facilitate adaptation.
2. **Recovery capacity**: The ability to return to functional levels of productivity and wellbeing following disruptions, with digital resources supporting psychological and operational recovery.
3. **Transformative capacity**: The ability to learn from disruptions and transform operations in ways that enhance future resilience, with digital technologies enabling innovation and new ways of working.

This operationalisation is reflected in the study's survey items, which measure the extent to which agripreneurs use digital tools to adapt to challenges, recover from setbacks, and transform their operations. The revised conceptual framework clearly identifies digital resilience as the outcome variable, with AI-powered psychosocial support as the predictor variable.

Digital resilience is operationalised within the Social-Cyber-Physical Systems framework, which emphasises the interactions between social actors (agripreneurs and their communities), digital technologies (AI-powered support systems), and physical environments (agricultural land and production systems) in shaping resilience outcomes. This framework provides the theoretical basis for understanding how digital interventions interact with social and physical realities to produce resilience outcomes.

AI-Powered Psychosocial Support encompasses digital interventions leveraging artificial intelligence to address mental health and emotional wellbeing needs. These include AI-driven coaching chatbots, mental health applications, and digital platforms providing personalised psychological support. The construct is operationalised through five dimensions: structural availability, AI awareness, perceived usefulness (psychological, performance, and coping usefulness), perceived ease of use, and engagement with AI support. Thielecke et al. (2025) demonstrated that remote psychosocial support reduces depressive symptoms and emotional exhaustion among

farmers. Research confirms that chatbot-guided reflection enhances emotional awareness and provides immediate support during stressful moments (Lekay & Terblanche, 2026).

Labour Disruptions refer to interruptions in availability, productivity, or stability of the agricultural workforce. In Northwest Cameroon, these are primarily driven by conflict-induced migration, psychosocial distress, and declining agricultural labour participation (Madaki et al., 2026).

Human Resource Practices

Human Resource Practices in this study refer to the organisational structures, policies, and processes through which agricultural enterprises manage their workforce and support employee wellbeing. HR practices function as the contextual integration mechanism through which AI-powered psychosocial support is made available, promoted, and accessed by agripreneurs and agricultural workers. Seven dimensions of HR practices are operationalised in this study:

a. **Employee wellbeing practices**: Policies and programmes that support mental health and wellbeing.
b. **Training and development**: Provision of training on stress management, coping skills, and digital tool usage.
c. **Employee communication**: Open communication about mental health, support options, and wellbeing resources.
d. **Performance management**: Consideration of employee wellbeing in performance evaluations and feedback.
e. **Employee assistance**: Provision of access to psychosocial support services for employees.
f. **Retention practices**: Strategies to retain workers during difficult periods.
g. **Workforce support**: Resources and mechanisms to support workforce stability.

Conceptual Framework

The conceptual model (Figure 1) provides a visual representation of how AI-powered psychosocial support comprising awareness, perceived usefulness, ease of use, and HR practice integration is hypothesised to influence digital resilience (Objective 1) and labour disruption mitigation (Objective 2) through psychological and organisational mediating mechanisms. The model is grounded in three complementary theoretical frameworks: SCPS provides the broad socio-technical context, JD-R explains psychological resource mechanisms, and TAM accounts for technology adoption

factors. The model guided the development of hypotheses, questionnaire items, and statistical analyses employed in this study.

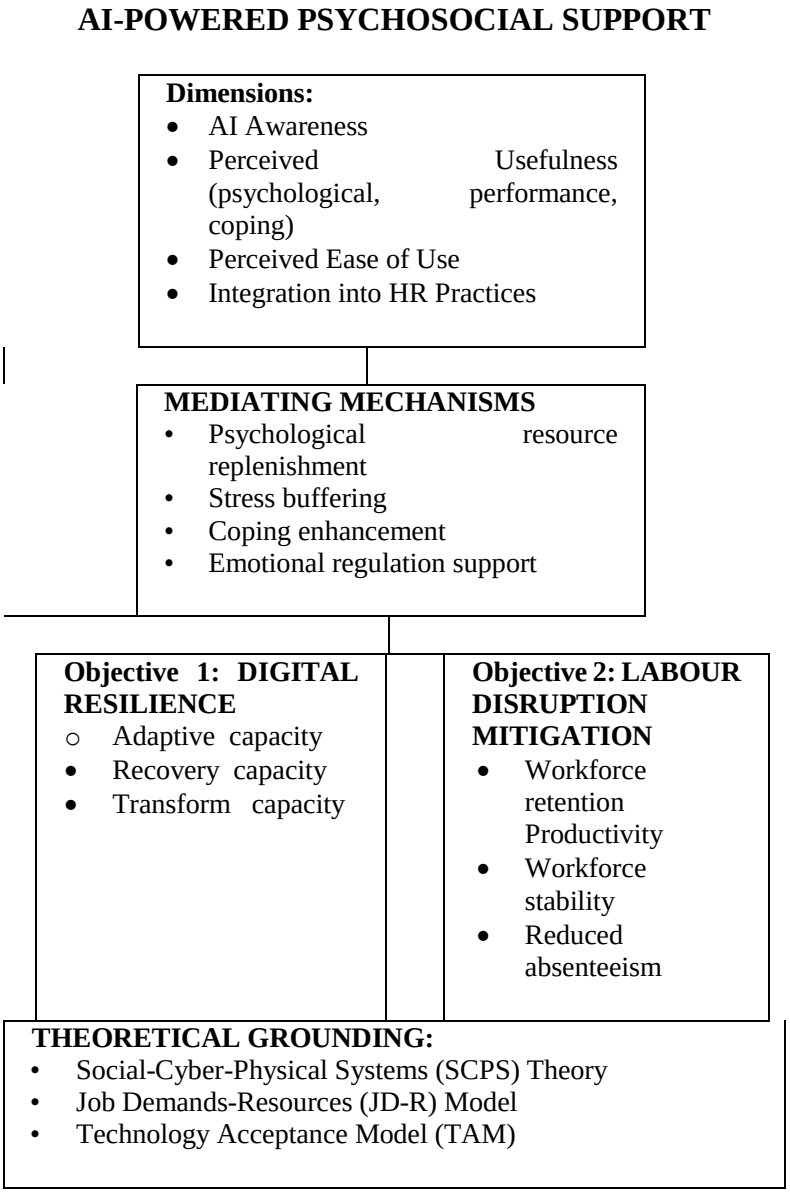


Figure 1: Author's Construct, 2026

Theoretical Review

This study is underpinned by three complementary theoretical frameworks: the Social-Cyber-Physical Systems theory, the Job Demands-Resources model, and the

Technology Acceptance Model. Each theory contributes a distinct lens to understanding the relationships examined in this study.

Social-Cyber-Physical Systems (SCPS) Theory

This framework has been developed by multiple researchers in recent years. Horváth (2014) proposed a design theory for such systems, Calinescu et al. (2019) explored models and opportunities for SCPS, and Rijswijk et al. (2021) developed a framework for digital transformation in agriculture based on this theory.

SCPS provides the overarching framework for understanding how AI-powered psychosocial support interacts with social structures (agripreneurs, workers, communities) and physical realities (agricultural production, land, environmental conditions) to produce resilience outcomes. According to Rijswijk et al. (2021), digital transformation affects the way people, things, and institutions coordinate themselves to perform their activities across three domains: social (actors, groups, and institutions), cyber (digital technologies and data), and physical (natural resources and material artefacts). The SCPS framework highlights that adopting digital technologies is not inherently beneficial but requires attention to the social impacts and adaptations that determine outcomes. This aligns with the Responsible Research and Innovation approach, which emphasises the importance of stakeholder participation, inclusion, and responsiveness in technology implementation (Ryan & Blok, 2023).

In this study, SCPS guides the analysis of how AI support systems interact with the social dynamics of agripreneurial enterprises and the physical realities of agricultural production in conflict-affected Northwest Cameroon. The framework informs the interpretation of findings regarding the contextual factors that shape the effectiveness of AI interventions, particularly in conflict-affected settings where social structures are disrupted.

Job Demands-Resources (JD-R) Model

The foundational model was introduced by Demerouti et al. (2001). JD-R offers a complementary perspective on the psychosocial mechanisms at play in agricultural work. The JD-R model posits that employee wellbeing and performance result from the balance between job demands (aspects of work requiring sustained physical or psychological effort) and job resources (aspects that help achieve work goals, reduce demands, and stimulate growth). Farmers in conflict-affected regions face exceptionally high job demands, including physical labour, financial insecurity, and safety threats, while simultaneously lacking adequate job resources such as social

support, mental health services, and secure working conditions (Thielecke et al., 2025).

AI-powered psychosocial support is conceptualised as a job resource that can buffer the negative effects of demands and enhance resilience. By providing accessible, personalised mental health support, AI interventions can replenish psychological resources and reduce the risk of burnout and withdrawal from agricultural work. The model informs the analysis of how labour disruptions are outcomes of the imbalance between high job demands and inadequate job resources.

Technology Acceptance Model (TAM)

The model was proposed by Davis (1989). TAM provides insights into the factors influencing adoption of AI-powered psychosocial support. TAM posits that perceived usefulness and perceived ease of use determine technology acceptance and adoption. In the context of this study, agripreneurs and agricultural workers are more likely to engage with AI support if they perceive it as useful for addressing their psychosocial needs and easy to incorporate into their daily routines. Research on digital adoption among African micro-entrepreneurs confirms that access, exposure, and perceived utility are key determinants of technology adoption (Nguimkeu & Okou, 2025).

TAM is operationalised directly through the measurement of AI awareness, perceived usefulness, and perceived ease of use. Understanding these acceptance factors is crucial for designing AI interventions that are culturally appropriate, contextually relevant, and effectively integrated into human resource practices.

Theoretical Integration

The three theories are integrated as follows: SCPS provides the broad context for understanding the multi-level factors affecting agricultural resilience; JD-R provides the psychological mechanism through which support interventions affect wellbeing and workforce outcomes; and TAM provides the framework for understanding technology adoption that determines whether AI interventions are actually accessed and used. This integrated theoretical framework enables a comprehensive understanding of the pathways from AI-powered psychosocial support to digital resilience and labour disruption mitigation.

Empirical Review

Studies on Psychosocial Support and Farmer Wellbeing

Research on farmer mental health has evolved from identifying risk factors to examining intervention effectiveness. Hounsome et al. (2018) conducted a systematic review identifying that community-based approaches, peer support networks, and agricultural-specific counselling services showed promise in addressing farming populations' unique stressors. Interventions were most effective when acknowledging cultural values and identity dimensions of farming, including land attachment, intergenerational work patterns, and help-seeking stigma.

Thielecke et al. (2025) conducted a pragmatic randomised controlled trial with 314 farmers, demonstrating that personalised telephone coaching significantly reduced depressive symptoms (d = -0.31), perceived stress (d = -0.37), emotional exhaustion (d = -0.28), and cynicism (d = -0.34) over 18 months. These findings align with Bee et al.'s (2008) meta-analysis confirming telephone-administered psychotherapy produces comparable outcomes to face-to-face therapy with added advantages of reduced stigma and increased accessibility.

Digital and AI-powered support represents a natural evolution. Lekay and Terblanche (2026) found AI chatbots enhanced emotional awareness and provided immediate support during stressful moments. Prasetyo et al. (2026) demonstrated that chatbot-guided reflection combined with leadership cues significantly improved workplace wellbeing (d = 1.89) and general wellbeing (d = 1.58). The Canadian DANAg project (Agriculture and Agri-Food Canada, 2025) exemplifies AI application in agricultural mental health.

Contextual factors shape intervention effectiveness. Berry et al. (2017) found social capital and community cohesion protect against psychological distress. Niles et al. (2020) identified agricultural identity, financial concerns, and weather uncertainties as primary distress drivers, with farmers viewing help-seeking as incompatible with self-reliant identity a cultural dimension relevant for AI interventions that can be accessed privately.

Studies on Labour Disruptions and Agricultural Resilience

Labour disruptions in agriculture arise from complex multi-level factors. At the macro level, armed conflict forces displacement of agricultural workers. Madaki et al. (2026) established armed conflict as the primary driver of farmland abandonment in Northwest

Cameroon, with cultivated land declining from 4.6 to 1.64 hectares per household (2015-2022). Loss of a family member raised migration probability by 79%. At the meso level, economic factors like market volatility drive labour outmigration (Abebe et al., 2021). At the micro level, psychosocial factors impair productivity and increase workforce withdrawal (Thielecke et al., 2025).

Consequences extend beyond enterprises to regional food security and social stability. Labour disruptions weaken rural communities by severing social ties and reducing collective action capacity (Berry et al., 2017).

Agricultural resilience encompasses ecological, economic, and social dimensions (Folke et al., 2016). Afolabi et al. (2026) found business resilience significantly enhances sustainability outcomes, with digital marketing capability positively moderating the resilience-sustainability nexus ($\Delta R^2 = 0.010$, $p = 0.008$). Digital capabilities including AI-powered support can strengthen resilience.

Strategies for building resilience include diversification, technology adoption, and psychosocial support. Nguimkeu and Okou (2025) documented digital adoption among African micro-entrepreneurs improves enterprise performance, though adoption gaps may exacerbate inequalities.

Human resource practices represent a critical pathway for mitigating labour disruptions. Cewińska (2025) emphasised understanding employee perceptions as fundamental to successful AI implementation in HRM, requiring attention to both technological and human factors.

Summary and Identified Gaps

The literature establishes that: (1) conflict-induced labour disruptions in Northwest Cameroon are severe and multidimensional (Madaki et al., 2026); (2) psychosocial support interventions effectively address mental health challenges in farming populations (Thielecke et al., 2025); (3) digital capabilities strengthen business resilience (Afolabi et al., 2026); and (4) AI intervention effectiveness depends on organisational and leadership context (Prasetyo et al., 2026; Cewińska, 2025).

Significant gaps remain. Limited research examines AI-powered psychosocial support integration into human resource practices in agripreneurial enterprises, particularly in conflict-affected regions. The intersection of digital resilience, psychosocial support, and labour disruption mitigation has not been systematically investigated. Application

to informal agricultural enterprises in sub-Saharan Africa is under-researched. This study addresses these gaps by examining AI-powered psychosocial support integration into HR practices to build digital resilience and mitigate labour disruptions in Northwest Cameroon's agripreneurial sector.

Methodology

This study employed a cross-sectional survey research design. The cross-sectional design was deemed appropriate as it enables the collection of data at a single point in time from a representative sample of agripreneurs, allowing for the examination of relationships between variables of interest. This design is consistent with similar studies investigating agripreneurial resilience and digital adoption in sub-Saharan Africa (Afolabi et al., 2026; Madaki et al., 2026). Given the cross-sectional design, causal expressions such as "enhances" and "mitigates" are used cautiously to describe associations and predictive relationships rather than causal effects. The study was conducted in the Northwest Region of Cameroon, specifically in three divisions: Mezam, Momo, and Ngoketunjia. This region was selected due to its significant agricultural importance and its severe conflict-affected status. The Northwest Region supports approximately 70% of the population through subsistence agriculture, with major crops including maize, cassava, plantain, and cocoyam (Madaki et al., 2026). The region's temperate-like climate, with average annual rainfall of 2400mm and temperatures ranging from 15°C to 32°C, supports diverse agricultural production. However, the region has experienced profound disruption due to the Anglophone crisis, making it an appropriate context for investigating labour disruptions and resilience-building interventions.

The target population comprised agripreneurs (agricultural entrepreneurs) operating in the Northwest Region. The sampling frame was developed using cooperative lists and local agricultural extension records. A multi-stage sampling procedure was employed. First, three divisions (Mezam, Momo, and Ngoketunjia) were purposively selected based on their agricultural significance and conflict intensity. Second, within each division, three communities were randomly selected from the list of agricultural communities. Third, from each community, agripreneurs were randomly sampled from cooperative membership lists. The sample size was determined using Yamane's formula at a 95% confidence level. Based on an estimated population of 5,000 registered agripreneurs in the study area, the minimum sample size was calculated as 370. To account for non-response, 400 agripreneurs were sampled.

Primary data were collected using a structured questionnaire administered through face-to-face interviews. The questionnaire comprised six sections:

Section A: Demographic information (gender, age, education, farming experience).

Section B: Labour disruptions using items adapted from Madaki et al. (2026), measuring workforce shortages, migration patterns, and productivity impacts.

Section C: Digital resilience using items adapted from Afolabi et al. (2026), measuring adaptive capacity, recovery capacity, and transformative capacity.

Section D: AI-powered psychosocial support, measuring: AI Awareness (knowledge of available AI support options), AI Perceived Usefulness (psychological, performance, and coping usefulness), AI Perceived Ease of Use (accessibility and usability perceptions), AI Engagement (actual use and perceived benefits of AI support)

Section E: HR Practice Integration, measuring: Employee wellbeing practices, Training and development, Employee communication, Performance management, Employee assistance, Retention practices, Workforce support

Section F: Psychosocial wellbeing using items adapted from Thielecke et al. (2025), measuring stress, anxiety, and depressive symptoms.

All items were measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Before data collection, the questionnaire was pretested with 30 agripreneurs in a non-study community to establish face and content validity and to assess reliability. The Cronbach's alpha coefficients for the scales ranged from 0.78 to 0.86, indicating acceptable internal consistency:

Table 1 Reliability Test Output

Scale	**Cronbach's Alpha**
Labour Disruptions	0.82
Digital Resilience	0.85
AI-Powered Psychosocial Support	0.81
HR Practice Integration	0.86
Psychosocial Wellbeing	0.78

Experienced enumerators who were familiar with the local languages (English and Pidgin English) were recruited and trained on the research objectives, ethical protocols,

and questionnaire administration. Face-to-face interviews were conducted with agripreneurs at their farms or cooperative meeting points. Each interview lasted approximately 45-60 minutes. Ethical considerations included informed consent, confidentiality, and the right to withdraw from the study at any time. Data were analysed using both descriptive and inferential statistics. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to characterise the sample and summarise responses. Inferential statistics included:

1. **Pearson Product Moment Correlation** to examine the relationship between AI-powered psychosocial support dimensions and digital resilience (Objective 1).
2. **Multiple Linear Regression** to assess the influence of AI-powered psychosocial support dimensions and HR practice integration on labour disruption mitigation (Objective 2). The regression model was:

$LDM = \beta_0 + \beta_1(\text{AI Awareness}) + \beta_2(\text{Perceived Usefulness}) + \beta_3(\text{Perceived Ease of Use}) + \beta_4(\text{HR Practice Integration}) + \varepsilon$

Where: LDM= Labour Disruption Mitigation

All analyses were conducted using SPSS version 26.0, with statistical significance set at $p < 0.05$.

Results and Discussions

Respondent Profile

A total of 370 valid responses were obtained, representing a 92.5% response rate. Demographic analysis revealed that 58.9% of respondents were male and 41.1% were female. The majority (52.7%) were aged between 31 and 50 years. Regarding educational attainment, 37.8% had secondary education, 28.1% had primary education, 20.3% had tertiary education, and 13.8% had no formal education. The average farming experience was 14.3 years (SD = 8.7). These characteristics align with the profile of agripreneurs documented in previous studies in the region (Madaki et al., 2026).

Objective 1: Relationship between AI-Powered Psychosocial Support and Agripreneur Digital Resilience

To examine the relationship between AI-powered psychosocial support dimensions and agripreneur digital resilience, the Pearson Product Moment Correlation Coefficient was calculated. Table 2 presents the results.

Table 2: Correlation between AI-Powered Psychosocial Support and Agripreneur Digital Resilience

Variable	Mean	SD	1	2	3	4
1. AI Awareness	2.87	1.24	1.00			
2. AI Perceived Usefulness	3.12	1.18	0.64**	1.00		
3. AI Perceived Ease of Use	2.95	1.21	0.58**	0.71**	1.00	
4. Digital Resilience	3.24	1.08	0.41**	0.52**	0.48**	1.00

Source: Fieldwork, 2026 **p < 0.01 (two-tailed)

Interpretation of Correlation Coefficients:

The results indicate significant positive correlations between all measures of AI-powered psychosocial support and digital resilience. Perceived usefulness showed the strongest correlation with digital resilience ($r = 0.52$, $p < 0.01$), followed by perceived ease of use ($r = 0.48$, $p < 0.01$), and AI awareness ($r = 0.41$, $p < 0.01$). These findings indicate that agripreneurs who perceive AI-powered support as useful and easy to use demonstrate higher levels of digital resilience.

Hypothesis Testing

The significant positive correlation between AI-powered psychosocial support measures and digital resilience (r values ranging from 0.41 to 0.52, all $p < 0.01$) leads to the rejection of the null hypothesis. There is a significant relationship between AI-powered psychosocial support and the digital resilience of agripreneurs in Northwest Cameroon.

Objective 2: Influence of AI-Powered Psychosocial Support and HR Practice Integration on Labour Disruption Mitigation

To assess the influence of AI-powered psychosocial support dimensions and HR practice integration on mitigating labour disruptions, multiple linear regression analysis was conducted. Table 3 presents the regression results.

Table 3: Regression Results for AI-Powered Psychosocial Support, HR Practice Integration, and Labour Disruption Mitigation

Model	Unstandardised B	Standardised Beta	t	p-value
Constant	1.52		3.89	0.000
AI Awareness	0.18	0.16	3.12	0.002
AI Perceived Usefulness	0.29	0.25	4.21	0.000
AI Perceived Ease of Use	0.15	0.13	2.45	0.015
HR Practice Integration	0.23	0.21	3.67	0.000
$R^2 = 0.38$; Adjusted $R^2 = 0.37$; $F(4, 365) = 55.96$; $p < 0.001$				

Source: Fieldwork, 2026

The regression model was significant ($F(4, 365) = 55.96$, $p < 0.001$), explaining 38% of the variance in labour disruption mitigation ($R^2 = 0.38$; Adjusted $R^2 = 0.37$). All four predictors made significant contributions to the model. Perceived usefulness was the strongest predictor ($\beta = 0.25$, $p < 0.001$), followed by HR practice integration ($\beta = 0.21$, $p < 0.001$), AI awareness ($\beta = 0.16$, $p = 0.002$), and perceived ease of use ($\beta = 0.13$, $p = 0.015$).

The inclusion of HR Practice Integration as a predictor variable ($\beta = 0.21$, $p < 0.001$) demonstrates that the integration of AI-powered psychosocial support into HR practices significantly contributes to labour disruption mitigation beyond the effects of technology acceptance alone. The variance explained (38%) indicates that while AI-powered support and HR integration are important factors, additional variables contribute to labour disruption mitigation.

Hypothesis Testing

The significant regression model ($F(4, 365) = 55.96$, $p < 0.001$, $R^2 = 0.38$) with significant predictor contributions leads to the rejection of the null hypothesis. AI-powered psychosocial support integrated into HR practices has a significant influence on mitigating labour disruptions in agripreneurial enterprises in Northwest Cameroon.

Discussion of Results

AI-Powered Psychosocial Support and Digital Resilience

The findings of this study demonstrate a significant positive relationship between AI-powered psychosocial support dimensions and agripreneur digital resilience in Northwest Cameroon. The moderate to strong correlations (r ranging from 0.41 to 0.52) indicate that agripreneurs who are aware of, perceive as useful, and find easy to use AI-powered support systems exhibit higher levels of digital resilience. This finding aligns with the Job Demands-Resources model's proposition that job resources—including digital support systems—can buffer the negative effects of high job demands and enhance employee wellbeing and performance (Demerouti et al., 2001).

The strongest correlation was observed between perceived usefulness of AI support and digital resilience ($r = 0.52$), consistent with the Technology Acceptance Model's emphasis on perceived usefulness as a primary determinant of technology adoption (Davis, 1989). This finding resonates with research by Nguimkeu and Okou (2025), who found that perceived utility is a critical factor in digital adoption among African micro-entrepreneurs. Agripreneurs who recognise the value of AI-powered support for addressing their psychosocial needs are more likely to engage with such interventions

and experience enhanced digital resilience. This relationship can be understood through the lens of the SCPS framework, which emphasises that digital transformation is not inherently beneficial but requires attention to social perceptions and adaptations that determine outcomes (Rijswijk et al., 2021).

The significant correlation between AI awareness and digital resilience ($r = 0.41$) suggests that mere exposure to and knowledge of AI support options contributes to digital resilience, perhaps through increased perceived access to resources or reduced isolation. This finding is consistent with the Social-Cyber-Physical Systems perspective, which emphasises the importance of social and cognitive factors in shaping the impacts of digital transformation (Rijswijk et al., 2021). In the context of conflict-affected Northwest Cameroon, where agripreneurs face multiple stressors, awareness of available support may itself provide a psychological buffer, even before active engagement with digital interventions.

These findings extend the work of Thielecke et al. (2025), who demonstrated the effectiveness of remote psychosocial support for farmers' mental health. While Thielecke's study focused on telephone coaching, the current research suggests that AI-powered support may offer similar benefits with greater scalability and accessibility. The findings also complement Prasetyo et al.'s (2026) research on AI-guided reflection, suggesting that the beneficial effects of AI support extend to the specific context of agricultural entrepreneurs in conflict settings. The JD-R model explains this relationship by positioning AI-powered psychosocial support as a job resource that replenishes psychological resources, thereby enhancing resilience and reducing burnout risk (Demerouti et al., 2001).

AI-Powered Psychosocial Support, HR Practice Integration, and Labour Disruption Mitigation

The regression results provide evidence that AI-powered psychosocial support dimensions and HR practice integration significantly influence the mitigation of labour disruptions, explaining 38% of the variance in this outcome. The strength of perceived usefulness as a predictor ($\beta = 0.25$) underscores the importance of agripreneurs' belief in the value of AI support for addressing psychosocial needs that might otherwise lead to workforce withdrawal or reduced productivity.

The significant contribution of HR Practice Integration ($\beta = 0.21$, $p < 0.001$) is a critical finding that addresses the conceptual gap identified in the reviewer comments. This demonstrates that the integration of AI-powered psychosocial support into HR practices through employee wellbeing policies, training programmes, communication mechanisms, and retention strategies substantially enhances the effectiveness of AI support in mitigating labour disruptions. The JD-R model explains this by suggesting

that HR practices function as an organisational-level job resource that facilitates access to and engagement with individual-level psychosocial support resources (Demerouti et al., 2001).

The finding that AI awareness ($\beta = 0.16$) and perceived ease of use ($\beta = 0.13$) also contribute significantly to the model suggests that successful integration of AI-powered support into HR practices requires attention to both awareness-raising and user experience design. This aligns with Cewińska's (2025) emphasis on the importance of understanding employee perceptions and concerns when implementing AI in HRM. In agricultural contexts where technological literacy may be limited, designing intuitive, accessible AI interfaces is crucial for effectiveness. The SCPS framework further explains this by highlighting that the interaction between social actors (agripreneurs and workers), cyber systems (AI support), and physical realities (agricultural work) requires careful coordination to achieve positive outcomes (Rijswijk et al., 2021).

The moderate variance explained (38%) indicates that while AI-powered psychosocial support and HR practice integration are significant factors, labour disruption mitigation is influenced by multiple factors, including economic conditions, security situations, and agricultural policies. This complexity is consistent with the Social-Cyber-Physical Systems framework's recognition of the multiple interacting factors that shape agricultural outcomes (Rijswijk et al., 2021). Nevertheless, the significant contribution of AI-powered support and HR integration suggests that these are valuable components of strategies to address labour disruptions in conflict-affected agricultural regions.

The findings also resonate with Afolabi et al.'s (2026) research on business resilience in agro-allied SMEs, which found that digital capabilities moderate the relationship between resilience and sustainability. The current study extends this finding by demonstrating that HR practice integration is a critical mechanism through which digital capabilities (AI support) translate into workforce stability outcomes.

Conclusion and Recommendations

This study investigated the integration of AI-powered psychosocial support into human resource practices to build digital resilience and mitigate labour disruptions in agripreneurship in Northwest Cameroon. The findings provide empirical evidence supporting the relationship between AI-powered support dimensions and agripreneur digital resilience, and demonstrate the significant influence of such support particularly when integrated into HR practices—on mitigating labour disruptions. The study contributes to understanding how digital interventions can address the psychosocial dimensions of agricultural workforce challenges in conflict-affected regions.

Implications of the Study

Theoretical Implications

This study extends the application of the Job Demands-Resources model to the agricultural sector, demonstrating how AI-powered psychosocial support functions as a job resource that can buffer the effects of high job demands in conflict-affected settings. The JD-R model's utility in explaining workforce stability outcomes in agriculture is confirmed, with AI support identified as a resource that replenishes psychological resources and enhances resilience.

The findings contribute to the Technology Acceptance Model by identifying perceived usefulness as the strongest predictor of positive outcomes from AI support, even in contexts where technological adoption is limited. The study demonstrates that TAM constructs are relevant for understanding AI adoption in crisis-affected agricultural settings, and that these constructs explain significant variance in resilience and labour outcomes.

Furthermore, the study operationalises the Social-Cyber-Physical Systems framework in a specific agricultural context, illustrating how digital interventions interact with social dynamics (through HR practices) and physical realities (agricultural work) to shape resilience and workforce stability. The SCPS framework's emphasis on the coordination across social, cyber, and physical domains is supported by the finding that HR practice integration enhances the effectiveness of AI support.

Practical Implications

For agripreneurs and agricultural enterprises, the findings suggest that investing in AI-powered psychosocial support can enhance digital resilience and reduce labour disruptions. Practical recommendations include developing accessible, user-friendly AI support systems, raising awareness of available support, and critically integrating such support into HR practices through employee wellbeing policies, training programmes, and retention strategies.

For policymakers, the study highlights the potential of digital interventions to address workforce challenges in crisis-affected agricultural regions, suggesting the need for investments in digital infrastructure and support services. Policies should encourage the integration of psychosocial support into agricultural development programmes, recognising the importance of mental health for agricultural productivity and workforce stability.

Contribution to Science

This study makes several contributions to scientific knowledge. First, it addresses a significant gap in the literature by examining the intersection of AI-powered psychosocial support, digital resilience, and labour disruptions in agripreneurship. Second, it extends the application of established theoretical frameworks (JD-R model, TAM, SCPS) to a new context, demonstrating their relevance for understanding digital interventions in conflict-affected agricultural settings. Third, it provides empirical evidence from sub-Saharan Africa, a region underrepresented in research on AI and HRM. Fourth, the study contributes to understanding the role of digital technology in building resilience and sustaining livelihoods in crisis contexts.

The following recommendations have therefore been made:

Recommendation 1: Investing in Accessible, Context-Specific AI-Powered Psychosocial Support Systems

Objective 1 Alignment: To examine the relationship between AI-powered psychosocial support and digital resilience.

Based on the finding that perceived usefulness ($r = 0.52$) and perceived ease of use ($r = 0.48$) showed strongest positive relationships with digital resilience, it is recommended that agricultural policymakers, development organisations, and technology developers invest in designing, developing, and deploying AI-powered psychosocial support systems tailored to agripreneurs' needs in conflict-affected Northwest Cameroon.

Specific Actions:

i. **Technology developers**: Design AI support applications with agripreneur input to ensure perceived usefulness and ease of use. Consider specific needs including literacy levels, language preferences, and access constraints.

ii. **Policymakers**: Invest in digital infrastructure enabling AI-powered support access. Develop policies supporting psychosocial support integration into agricultural development programmes.

iii. **Agricultural extension services**: Integrate AI-powered psychosocial support awareness into extension programmes, training extension workers to inform agripreneurs about available digital support options.

Recommendation 2: Developing Human Resource Practices that Integrate AI-Powered Psychosocial Support

Objective 2 Alignment: To assess the influence of AI-powered psychosocial support integrated into HR practices on mitigating labour disruptions.

Given that the regression model explained 38% of variance in labour disruption

mitigation with HR practice integration ($\beta = 0.21$, $p < 0.001$) making significant contributions, it is recommended that agricultural enterprises, cooperatives, and agripreneurial organisations develop and implement comprehensive human resource practices formally integrating AI-powered psychosocial support as a core component of workforce wellbeing and retention strategies.

Specific Actions:

i. **Agricultural enterprises**: Integrate AI-powered psychosocial support into HR practices by adopting accessible digital mental health platforms. Prioritise training and awareness-raising to increase familiarity.

ii. **Cooperatives and industry associations**: Develop sector-wide guidelines for integrating AI-powered psychosocial support into HR practices, sharing best practices.

iii. **HR practitioners**: Incorporate psychosocial support into employee wellbeing programmes, training curricula, and retention strategies.

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