IJAAR PUBLISHING®

African Journal of Sustainable Agricultural Development | ISSN: 2714-4402
Vol. 7, Number 1 (2026) | https://doi.org/10.46654/x37adp87

Unpacking Agripreneurship in the Fourth Industrial Revolution (4IR) Era for Food Security and Job Creation: A Critical and Empirical Review

Dr Polycarpe FEUSSI.
Senior Lecturer, Commerce and Research, Eduvos University College,
Republic of South Africa
Email: Polycarpe.feussi@eduvos.com

Abstract
The purpose of this research is to critically analyse the impact of agripreneurship regarding food security and job creation during the Fourth Industrial Revolution (4IR) era. The method used in this paper was a systematic review conducted following PRISMA 2020 to synthesise both empirical and conceptual literature on topics relating to agripreneurship, digital agriculture and employment outcomes. The findings show that 4IR technologies (e.g., artificial intelligence, Internet of Things (IoT), and big data analytics) are changing the way we do agriculture and that these technologies provide better production, improved resource use, and greater integration within the value chain. The result is improved food security through increased food system availability, access to food, use of food, and stability of food systems. It has also been found that agripreneurship is playing an important role in creating employment opportunities, particularly for youth, through agritech start-ups and developing value chain opportunities. Many obstacles remain to hinder efforts at expanding the inclusiveness and scalability of agripreneurship enterprises. These barriers include limited access to financial capital, poor physical infrastructure, a shortage of digital skills, and insufficiency of policy support. Agripreneurship has been identified as having a large potential to reduce food insecurity and create jobs; however, for agripreneurs to become successful, there must be an inclusive ecosystem created, which requires effective development of relevant policies/procedures, building capacities, and providing access to the use of technologies. In addition to advancing academic literature about the role of digital technologies on the transformation of agriculture, this research provides policy and practice recommendations to improve the success of agripreneurs in developing countries.

Keywords: *Agripreneurship; Fourth Industrial Revolution (4IR); Food Security; Job Creation; Agricultural Innovation; Digital Agriculture; Agri-tech; Rural Development*

.

1. INTRODUCTION

Agriculture remains a cornerstone of economies, food systems, and employment in many parts of the world and plays a particularly important role in developing economies. However, with agricultural structures unable to keep up with food demand due to structural inefficiencies, climate variability and increasing population, there is significant demand for new agricultural systems. Agripreneurship has arisen as a mechanism to transition agriculture from subsistence to innovative, commercially orientated enterprises. In addition, the Fourth Industrial Revolution (4IR) is creating disruptive technologies such as artificial intelligence (AI), big data, blockchain and the Internet of Things (IoT) that are dramatically changing traditional agricultural production systems, creating new efficiencies and opportunities for the sustainable and inclusive development of agriculture. This paper explores agripreneurship within the 4IR era, specifically addressing how this form of business will affect food security and job creation.

2. LITERATURE REVIEW AND CRITICAL SYNTHESIS

The combination of 4IR (Fourth Industrial Revolution) technology and agriculture is helping to change agricultural systems by creating opportunities for innovative and productive agricultural growth as well as enhancing the economy. Agripreneurship has played an important role in making our old agricultural way of farming into a more technologically advanced agrarian system that helps solve food insecurity and unemployment issues globally (especially in developing countries). The purpose of this section is to summarize the currently available literature about entrepreneurship, agripreneurship in the 4IR context, focusing on how technology, innovation, and institutional support affect outcomes, and to highlight where there are still gaps and opposing points of view, establishing a foundation for the conceptual framework and empirical analysis of the study.

2.1 Entrepreneurship and agripreneurshipas triggers of development

What is entrepreneurship?

Ndedi (2004; 2009; 2013; 2015) defines entrepreneurship as the process of designing, launching, and managing a new business or a venture. It involves innovation, risk-taking, and the goal of achieving financial and social value. Often associated with startups, entrepreneurship spans a broad range of activities from launching a company to founding a non profit or transforming internal business unit. At its core, entrepreneurship is about creating something new, a product, a service, a process or a social movement. (Antonites, 2003; Ndedi, 2004)

Entrepreneurship has historically been the driving force behind innovation and wealth creation. (2009) Turning an idea into reality requires a methodological approach, from concept validation to final execution. Successful ventures are not just born from lightbulb moments; they stem from an entrepreneur's ability to remain flexible, pivot when necessary, and transform challenges into opportunities. (Ndedi, 2013a)

To understand this process, we must consider the core pillars of entrepreneurship, (Ndedi, 2015):

- Identifying opportunities: Spotting market niches, unsolved problems, or unmet needs.
- Innovation: Creating a product, service, or business model that adds value, whether through disruption or continuous improvement.
- Risk-taking: The willingness to invest time, capital, and personal effort in an environment of uncertainty. (Ndedi, 2013b)

Ndedi (2017) defines agripreneurship as the innovative combination of agriculture and entrepreneurship, focusing on transforming subsistence farming into sustainable, profitable business ventures. For the author, agripreneurs are innovators who drive economic growth by serving new markets, improving value chains, and creating new ways of doing things in agriculture. (Ndedi, 2017)

Ndedi and Feussi, (2017) assert that entrepreneurs are people who decide to use their entrepreneurial skills to make their organisation viable and sustainable over time. Further, the concept of agripreneurship which is the combination of agriculture (agri) and entrepreneurship (preneurship). Thus, an agripreneur is an entrepreneur in agriculture, and agripreneurship is the process thereof. The concept of agripreneurship aligns the agriculture of second generation in transforming the lives of stricken farmers in developing countries. (Ndedi and Feussi, 2017)

Research has shown that agripreneurship helps promote rural development while strengthening national economies. Recent studies, or studies conducted between 2015 and 2022, highlight the positive effects of agripreneurship on reducing poverty rates, developing job opportunities, and increasing GDP growth in developing nations (Fidelis & Adeyeye, 2025). One statistic shows a 1% increase of entrepreneurial supportive activity (i.e., activity that is supportive towards entrepreneurs) within agricultural sectors results in a 2% decrease in poverty. Furthermore, research has shown that agripreneurs generate employment opportunities along the agricultural value chain. Also, Ag-Tech companies have a projected economic impact of over $1 trillion by 2025 (Abdulrahman et al., 2025). In addition, developing a business-oriented mentality allows farm operators the ability to achieve maximum value while performing business transactions according to Schumpeterian innovation theory, which suggests that innovations in agriculture through methods such as CRISPR-CAS technologies and digital twins elevate productivity for agricultural products or crop yields (Adenutsi, 2023).

Moreover, research supports that agricultural development provides greater benefits in decreasing poverty rates than any other sector (e.g., service sector, manufacturing sector) due to the agricultural entrepreneurial development model (AEDM) that creates enabling environments for farm owners (Lakra, 2022). However, critics point out that there are no guarantees of success for agripreneurs and that unsustainable or mismanaged agripreneurship may worsen climate change issues. Moreover, various barriers, including lack of agricultural knowledge and access to financial services, hinder many individuals (particularly women) from entering intoagripreneurship (Azamat et al., 2023). Therefore, agripreneurship success depends on having dependable institutional support systems and government policies that support agripreneurship within a larger entrepreneurial ecosystem.

The increasing recognition of agripreneurship as a key approach to economic growth, reducing poverty, and ensuring food security is well established; thus, future improvements in innovation, the management of businesses, and participating in value chains in systems of agriculture will result. Several recent analyses show that agripreneurship includes much more than merely producing agricultural products (e.g., processing what has been produced and distributing those products). Market integration for agricultural products is also part of agripreneurship; this provides opportunities for obtaining multiple sources of income and increasing the resiliency of rural economies. However, there is still a considerable amount of information missing from the body of literature related to agripreneurship. While agripreneurship is often presented as a means to achieve developmental objectives, there are many aspects of agripreneurship programmes that will determine their success: the

availability of the necessary resources, the existence of an enabling institution (i.e., government and non-governmental organizations), and technological integration within the method used for producing agricultural products (or combining different types of agriculture).

2.2 4IR technologies and agricultural transformation

The Fourth Industrial Revolution (4IR) has had a major impact on the way we grow food and cultivate crops, transitioning agriculture from a sector primarily driven by human labour to a highly connected, predictive ecosystem (David et al., 2024). In fact, farmers now have an intelligent partner in AI, as AI has become a decision-making partner in the farm and will assist farmers in addressing labour shortages through automated, specialized robots (Gupta & Gupta, 2024). Precision agriculture leverages state-of-the-art sensors to improve the cost effectiveness and sustainability of agricultural practices.

Furthermore, the use of cyber-physical systems will enable the use of data-driven optimization for all parts of the value chain by providing advantages through the merging of both the biological and digital technologies resulting in increased productivity and growth rates than what has been observed previously (Yordanova &Nozari, 2025). Evidence shows that practices outlined by the 4IR will provide efficiency improvements in irrigation and higher output for smallholder farmers; however, the digital divide and some farmers' lack of understanding of technology will put some farmers at risk of becoming more marginalised (Mtshali, 2026). There will be a need for alternative financing solutions and flexible systems to successfully implement the 4IR and show that even though the entire extent of the benefits will be considerable, applications of these benefits will differ in context.

The advent of Fourth Industrial Revolution (4IR) technologies has transformed agricultural systems into data-driven farms, allowing for both increased efficiency and productivity; the 4IR technologies that have enabled this evolution to occur are IoT, artificial intelligence (AI), robotics and large data sets (big data) (Chaka, 2023). Consequently, agricultural production systems are developing with the goal of producing food using the "precision agriculture" approach, where farmers are able to monitor the operation of their farms in real time as well as use predictive analysis to assist them in making informed decisions. Research has indicated that adoption and implementation of 4IR technologies are contributing to increased food security by enabling farmers to be able to produce more food with less waste, therefore improving the availability and accessibility of food as well as the overall sustainability of the agricultural system (environmentally and economically) (Mafenya, 2024). Additionally, the other benefits of agriculture 4.0 will include increased climate resilience and overall sustainability of the agriculture sector; however, in many developing regions of the world, the implementation and adoption of 4IR technologies are not only limited but also diverging due to several factors, which include the high cost of implementing these technologies, the lack of available digital skills and the lack of adequate digital infrastructure.

2.3 Agripreneurship and food security

Agripreneurship is essential for food security through the establishment of entrepreneurial agribusiness and helps overcome the limitations of food systems on food availability, accessibility, utilization, and stability because it focuses on correcting the systemic inadequacies of food systems regarding their distribution characteristics, not their production characteristics, through innovative approaches to develop logistics systems for food distribution, reduce food waste, and improve food distribution (Kazungu &Kumburu 2023;

Seyam et al. 2026). Agripreneurship benefits youth and women by providing opportunities to build the resilience of communities, as well as hybrids for incorporating smallholder farmers into high-value supply chains (Matla 2025). The barriers to the potential for growth through agripreneurship remain numerous, including land tenure insecurity and limited access to finance (Holland et al., 2022). Ethical concerns associated with the dependency on GMOs for food production reinforce that an inclusive approach will facilitate the development of agribusiness that can be affordable and equitable and further call upon the establishment of targeted policy alternatives that support and encourage inclusive entrepreneurial growth in agribusiness.

Food security is comprised of four important elements: access, availability, utilisation, and stability. Agripreneurship is a type of enterprise activity associated with agriculture that has a significant impact on these four elements through increased agricultural productivity, facilitated food supply chains, and enhanced farmer incomes (Calloway et al., 2023). Numerous studies have focused on how the innovation aspect of agripreneurship through technological advancements is immensely valuable to producing more stable food-security outcomes by way of supporting food systems through youth agripreneurship, particularly in the area of digital agriculture and smart-farming solutions that are fundamentally changing the way agricultural farmers operate (Muktar et al., 2022).

Although agripreneurship presents numerous opportunities, there exists substantial literature indicating that just implementing it cannot mean that food will be consistently supplied (Malhotra et al., 2025). As such, agripreneurs require other supports in addition to those associated directly with the farming enterprise, including the infrastructure to aid in the supply chain, appropriate policies that assist the agricultural industry, and improved market access to distribute their goods or services (Gadanakis, 2024). Thus, a comprehensive framework that combines agripreneurship with supports that provide the required structural (or sub-structural) assistance for agribusiness and, ultimately, food security must be developed to effectively address the challenge of food insecurity.

2.4 Agripreneurship and job creation

Agripreneurship plays a critical role in creating jobs and improving rural economies by specifically addressing the issue of youth unemployment by providing opportunities for youth in the midstream and downstream value chain (Olatidoye, 2024). Studies show that youth can find employment opportunities as agripreneurs and employment opportunities are correlated and dependent on whether or not there is an active agribusiness market. According to the DRC, 63% of jobs are related to agriculture. New types of ventures emerging from innovative methods of creating agricultural production (e.g., newly created jobs for pilot drones and data analysts) create new job openings for college graduates that are looking for jobs (Bansah et al., 2023).

The professionalization of agriculture has increased its stature as a competitive employer because it requires specific skills that will increase employment opportunities in the rural labor market. The Push-Pull Motivation Framework, which explains how individuals are influenced by both the desire to innovate and the need for employment, reveals that many young people will use their motivation to innovate rather than a need for employment (Giebler, 2022). Training has produced many managers in the agricultural sector, yet there are still tremendous challenges due to mismatches between the skills developed through training and the skills needed for the success of new businesses (McDonald et al., 2024). Agripreneurship could reduce unemployment if there is enough public support provided

through integrated policies for land acquisition and connectivity to the internet or other digital infrastructure.

Participation in agricultural entrepreneurship (agripreneurship) continues to grow in importance. Successful agripreneurship will provide employment opportunities in the agricultural value chain (e.g., production, processing, logistics, and retail) primarily for young people living in rural areas and assist in reducing rural-urban migration, as well as help to stimulate their local economies (Ikebuaku and Dinbabo2023). Youth who want to become agripreneurs can create new businesses and jobs for themselves and others; however, the Fourth Industrial Revolution (4IR), while generating new skill-intensive job opportunities, is also reducing the number of available, skill-intensive ones (Shrestha, 2022). Those that have been created will require that we make strategic investments in skill development/reskilling to ensure that we continue to provide inclusive job opportunities across the spectrum of working-age people in the labour force.

2.5 Research gap

This study intends to provide an integrated conceptual model that bridges the voids in literature on agripreneurship, Fourth Industrial Revolution (4IR) technologies, food security and job creation. Existing works have predominantly isolated these areas of research without performing robust comprehensive studies to connect them within a broader context (Malhotra et al., 2025). Furthermore, the moderating impact of technology adoption on these variables has not been a significant area of exploration (Chatterjee et al., 2022). This study also provides empirical verification of how these areas are mutually inclusive via the use of developing economies and serves to advance our knowledge relating to the circumstances surrounding these sectors and their respective impacts on the economy and job growth.

3. THEORETICAL FRAMEWORK

3.1 Sustainable Livelihoods Theory (SLT)

According to SLT (Sustainable Livelihoods Theory), individuals' livelihoods are affected by their access to various forms of capital, including human, social, financial, physical and natural. Agripreneurs can create many of these forms of capital (Giri, 2024). For example, by creating income, agripreneurship provides individuals with a greater degree of financial stability. Agripreneurs also develop human capital through the acquisition of skills by individuals working with them. As a result, agripreneurs help to create and/or strengthen networks between agriculture-related businesses and their respective communities; thus, agripreneurship is critical to both enhancing personal livelihoods and achieving larger goals, such as providing food security and creating jobs (Kazungu &Kumburu, 2023).

3.2 Diffusion of Innovation Theory (DOI)

The introduction of new technological advancements, which increase productivity and the level of market performance, will greatly enhance the economic competitiveness for an agripreneurship. New technology adoption for early adopters is very significant (Putra et al., 2025). The technology adoption process is affected by several factors such as costs associated with adoption, awareness of potential adopters of available technologies, and perceived benefits of using the technology being adopted (Khin and Kee, 2022). Lack of adoption of new agricultural technology will create extreme differences in agricultural production among different populations, thereby increasing the need for more programmes to increase the awareness of new agricultural technology and to eliminate barriers to access (Tadesse & Ahmed, 2023). In addition, there is also a clear need to create a supportive environment for

the adoption of new technologies to ensure equal opportunity to participate in the agripreneurship sector.

.

3.3 Conceptual Model

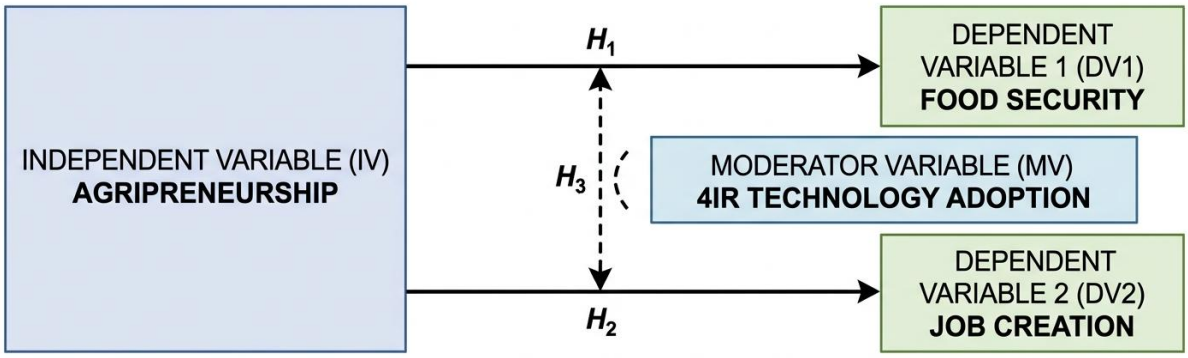


Figure 1: Conceptual model.

The conceptual framework provides evidence to suggest that agripreneurship contributes positively to food security and job creation. In addition, the moderating effect of the adoption of Fourth Industrial Revolution (4IR) technologies improves the efficiency, scalability, and sustainability of agripreneurship activities.

4. HYPOTHESES DEVELOPMENT

Based on the literature and theoretical framework, the following hypotheses are proposed:

- **H1:**Agripreneurship has a positive and significant relationship with food security.
- **H2:**Agripreneurship has a positive and significant relationship with job creation.
- **H3:** 4IR technology adoption has a positive and significant relationship with food security.
- **H4:** 4IR technology adoption positively moderates the relationship between agripreneurship and both food security and job creation.

African Journal of Sustainable Agricultural Development | ISSN: 2714-4402
Vol. 7, Number 1 (2026) | https://doi.org/10.46654/cd46ns96

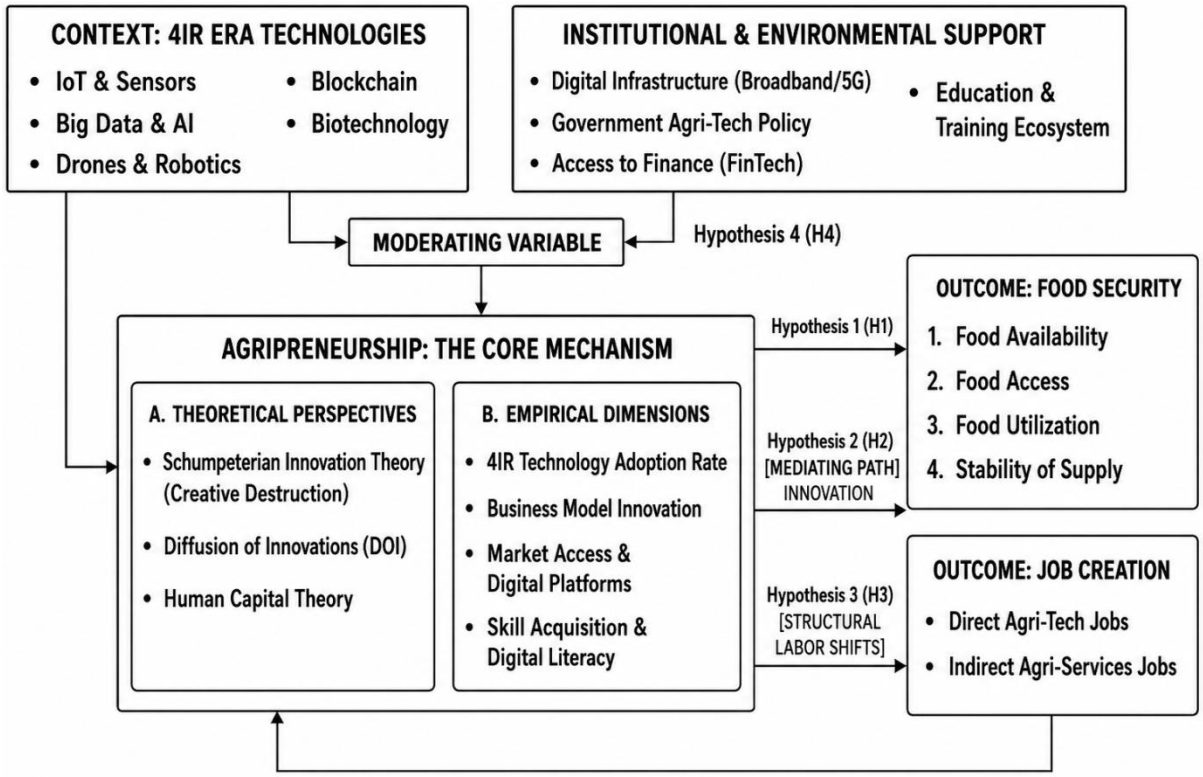


Figure 2.Agripreneurship, 4IR Technologies, and Development Outcomes Framework

Agripreneurship is at the center of a model driven by technology and innovation in agriculture. This model incorporates aspects from Schumpeter's innovation theory and human capital theory. This model is operationalized through the adoption of Fourth Industrial Revolution technologies, new business models, and improved access to markets. An institutional support modulating layer affected the efficacy of agripreneurship. Digital infrastructure and government policies provide this support. The hypothesized relationships between agripreneurship and food security include availability, access, use, and stability; and the establishment of jobs through structural shifts in the labor market. When agripreneurship has strong and viable technology and support services, it can greatly contribute to food and job security. On the other hand, if agripreneurship has weak or non-existent systems, it will not contribute to food or job security.

Possible model constructed
Moderated Multiple Regression Model

$$FS_i = \beta_0 + \beta_1 AGRIP_i + \beta_2 TA_i + \beta_3 (AGRIP_i \times TA_i) + \sum_{j=1}^{k} \beta_j X_{ij} + \varepsilon_i$$

$$JC_i = \alpha_0 + \alpha_1 AGRIP_i + \alpha_2 TA_i + \alpha_3 (AGRIP_i \times TA_i) + \sum_{j=1}^{k} \alpha_j X_{ij} + \mu_i$$

Expanded Empirical Specification

$$FS_i = \beta_0 + \beta_1 AGRIP_i + \beta_2 TA_i + \beta_3 (AGRIP_i \times TA_i) + \beta_4 FIN_i + \beta_5 INFRA_i + \beta_6 HC_i + \beta_7 MA_i + \beta_8 INS_i + \beta_9 FSIZE_i + \beta_{10} LOC_i + \varepsilon_i$$

$$JC_i = \alpha_0 + \alpha_1 AGRIP_i + \alpha_2 TA_i + \alpha_3 (AGRIP_i \times TA_i) + \alpha_4 FIN_i + \alpha_5 INFRA_i + \alpha_6 HC_i + \alpha_7 MA_i + \alpha_8 INS_i + \alpha_9 FSIZE_i + \alpha_{10} LOC_i + \mu_i$$

Where:
FS_i= food security outcome of agripreneurship unit i
JC_i= job creation outcome of agripreneurship unit i
$AGRIP_i$= agripreneurship intensity
TA_i= 4IR technology adoption
$AGRIP_i \times TA_i$= moderation term
FIN_i= access to finance
$INFRA_i$= digital and physical infrastructure
HC_i= human capital
MA_i= market access
INS_i= institutional support
$FSIZE_i$= farm or enterprise size
LOC_i= location effect
ε_i, μ_i= error terms
mean-centred variables before creating the interaction term:

$$AGRIP_c = AGRIP_i - \bar{AGRIP}$$
$$TA_c = TA_i - \bar{TA}$$

Then estimate:

$$FS_i = \beta_0 + \beta_1 AGRIP_c + \beta_2 TA_c + \beta_3 (AGRIP_c \times TA_c) + \sum_{j=1}^{k} \beta_j X_{ij} + \varepsilon_i$$

$$JC_i = \alpha_0 + \alpha_1 AGRIP_c + \alpha_2 TA_c + \alpha_3 (AGRIP_c \times TA_c) + \sum_{j=1}^{k} \alpha_j X_{ij} + \mu_i$$

5. RESEARCH METHODOLOGY

5.1 Research Design

The dual research methods included in this section unpack how agripreneurship, 4IR technologies and food security all converge together to support job creation. A systematic literature review (SLR) using the PRISMA framework is provided, with an accompanying critical narrative synthesis of empirical findings drawn from the literature (Polychronopoulos & Nguyen-Duc, 2024).

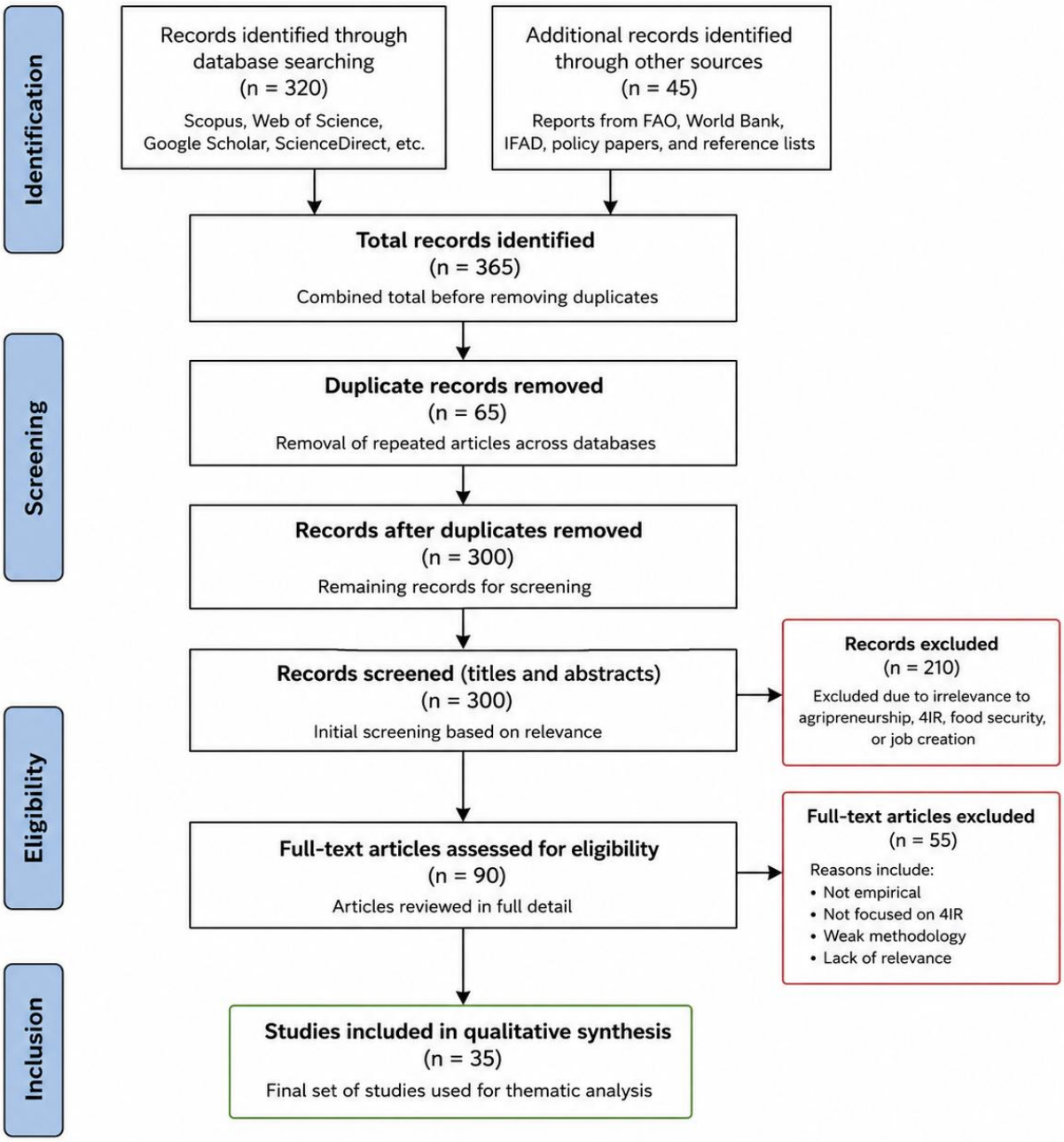
This research will employ a qualitative meta-synthesis to investigate the relationship between the Fourth Industrial Revolution (4IR) and the agricultural profession. Snyder (2019) states that this research method is appropriate for the emerging agricultural field, as it provides a means to combine disjointed and dispersed data points into a coherent conceptual essence that allows for greater understanding of how the 4IR can potentially affect the professional success of agripreneurs (Smidt & Jokonya, 2023). Additionally, the researcher will conduct an empirical review of the existing body of literature to describe how 4IR could serve as an operational moderator for agripreneurial success.

5.2 Data Collection

The data collected from each selected study will be systematically evaluated using thematic content analysis methods. Information extracted from studies will be classified into a review matrix to provide an overview of key study features (eg, characteristics of the study, methodologies, technologies assessed, and outcomes) and how they relate to employment and food security issues (Cernasev and Axon, 2023). The evaluation process will involve creating

a descriptive summary of the literature, coding common themes and concepts (i.e., for recurrences), and creating groupings of codes into high-level themes (Nguyen-Trung, 2025). Finally, the synthesis will critically examine how agripreneurship during the Fourth Industrial Revolution has affected agriculture, enterprise, economic development, and food systems. The PRISMA 2020 will be used to illustrate the total number of studies identified, assessed, excluded, and included in the review.

Table 1: Summary of Literature Screening and Selection Using the PRISMA Approach



5.4 Data Analysis

This section discusses the findings and discussions of research articles regarding agribusiness development in a Fourth Industrial Revolution context for food security and job creation. Findings are reported thematically according to the systematic literature review process

established by PRIA review of the literature has identified the increasing interest among academics in agricultural entrepreneurship in the context of Fourth Industrial Revolution technologies as evidenced by most published articles during the years of 2018 through 2026 having to do with the relevance of digital transformation in agriculture. Geographically, most of the research articles were based in developing countries especially within Sub-Saharan Africa, Asia, and Latin America and are being used to address unemployment and food insecurity through agribusiness.

The majority of studies employed the following research methods, (Feussi et al.; 2022):

- qualitative case studies;
- mixed methods;
- policy analyses;
- empirical surveys.

The most frequently referred to Fourth Industrial Revolution technologies related to agricultural entrepreneurship include:

- precision agriculture;
- internet of things (IoT);
- artificial intelligence (AI);
- big data analytics; and
- mobile agriculture platforms.

This trend supports the view of agribusiness as being technology-oriented more than traditional agribusiness. Furthermore, the amount of research done in developing countries supports the conclusion that agribusiness can be both an innovative strategy as well as an intervention for social development by addressing structural socio-economic issues.

6. DISCUSSION OF FINDINGS

This part looks at what this article finds from doing a systematic review of agripreneurship in the Fourth Industrial Revolution (4IR) and how it will affect food security and job creation. Agripreneurship has evolved from traditional farming methods to technology-driven practices, heavily influenced by artificial intelligence, Internet of Things (IoT) technologies, and data analytics (Bello2024). This shift represents a move towards 'Agriculture 4.0', which focuses on using data as a key factor in decision-making and enhancing efficiency.

In terms of food security, the evidence suggests that agripreneurship is a significant contributor to food security by improving productivity through innovations (eg, technology), reducing post-harvest losses, improving supply chain processes, and providing improved access to markets (Sumelius et al., 2026). In addition, the evidence suggests that agripreneurs are moving toward creating food security through improvements in four areas (availability, access, utilisation, and stability) that are multidimensional. On the other hand, it seems that agripreneurs therefore have an opportunity to be more successful if they are able to leverage their financial resources to grow in the future, which will require the need for agripreneurs to establish more inclusive models of agripreneurship (Banerjee et al., 2024).

Lastly, agripreneurship can create direct jobs and indirect jobs, promote youth engagement, create employment opportunities in rural areas, and create new employment opportunities in agri-tech and digital agriculture. This also creates an increased need for digital and technical skills, potentially creating a situation where people who do not have access to education and training seem to be further marginalised (Costache & Enachescu, 2025).

As a result, the review reveals that there are numerous barriers that are limiting the opportunities for agripreneurs to be able to positively impact their communities, such as limited access to finance, lack of adequate infrastructure, low levels of digital literacy, lack of strong policy support, and high costs of adopting 4IR technologies (Pal & Sharma, 2023). Because of the potential to impact the lack of food security and unemployment through agripreneurship, the authors note that systemic support is required to achieve impact and that there are structural inequalities in rural areas that would limit the scale and inclusivity of agripreneurship.

An important theme during the review was the need for an enabling ecosystem (policies) to create a successful agripreneurship ecosystem, and it highlights that governments should provide more than just access to finance, training programmes, and innovation hubs (Arumugam & Manida, 2023). Working effectively together, the individuals who comprise this ecosystem and their environments are critical to achieving success in agripreneurship; therefore, countries working with a well-developed policy environment and adequate infrastructure will achieve better outcomes (Muangmee, 2026). As a result, consideration should be given to integrating agripreneurship into the overall national development agenda and working to not isolate agripreneurship.

In conclusion, this literature review concludes that agripreneurship within the 4IR has the potential to contribute to food production systems through agriculture by improving agricultural methods and providing greater food security as well as creating jobs through sustainable employment. However, for the potential of agripreneurship to be realised requires the availability of technology, skills development, and enabling policies. Furthermore, it is therefore imperative that when evaluating agripreneurs, we consider both their innovative capacity and their capacity for inclusivity to ensure equal benefits from their work; thereby helping to alleviate some of the socio-economic inequities that exist.

7. RECOMMENDATIONS

People in inclusive agripreneurship are advocating for changes to improve the lives of smallholder rural farmers and young entrepreneurs and their families. In general, they recommend funding for digital connectivity in rural areas, providing grants/loans to support smallholder farmers, and adding agripreneurship to the National Development and Employment Strategies to create more economic growth.

There is also a need for building skills and developing capacity. This includes training in electronic agriculture, using digital entrepreneurship as an educational tool, including agripreneurship in educational curricula, supporting youth empowerment through agri-tech, and improving extension services to successfully use technology.

Strategies being considered to create access to technology for agripreneursinclude: producing user-friendly, inexpensive, mutually beneficial and easy-to-implement technologies; developing mobile technology for rural markets; expanding access to technology through public-private partnerships; and creating local environments for innovations that promote integration into agricultural production systems.

Stakeholders may provide assistance with establishing agribusiness incubators and innovation hubs; facilitating access to market opportunities and value chain links; collaborating between government, business, and educational institutions; and developing networking mechanisms to support agripreneurs in collaboration with one another to enhance agribusiness.

CONCLUSION

This article presents an examination of agripreneurship's contribution to food security and employment opportunities within the context of the Fourth Industrial Revolution (4IR). Agripreneurship plays an integral part in assimilating innovative technologies such as Artificial Intelligence (AI) and the Internet of Things (IoT) into agricultural value chains which creates employment. Moreover, the degree to which you integrate youth into technology-driven businesses is influenced by available job creation from agripreneurs as well.

Unfortunately, advantages are not shared evenly across all agricultural sectors; there are numerous barriers preventing the participation of agripreneurs in agriculture such as limited access to funding capital or digital literacy on behalf of prospective entrepreneurs. Hence, this paper supports the concept of a coordinated, synergistic, and collaborative approach to agripreneurship so that a supportive ecosystem can be created.Thus, agripreneurial activities are transformative in nature. For agripreneurs to be able to create equitable and sustainable outcomes through transformation will require direct capacity building efforts and a systemic approach to support these efforts, therefore additional research is necessary to determine the effects of agripreneurship in various settings.

REFRENCES

Abdulrahman, R. R., Salih, A. M., Hussein, H. H. S., Aivas, S. A., Ahamd, K. H., Fatah, N. A., ... &Bayz, H. A. (2025). The role of agriculture sector in eradicating poverty: Challenges, policies, and pathways for economic growth in less developed countries. Education, 5(2), 208-213. ijssers.org

Adenutsi, D. E. (2023). Entrepreneurship, job creation, income empowerment and poverty reduction in low-income economies. Theoretical Economics Letters. researchgate.net

Arumugam, U. & Manida, M. (2023). Agripreneurship for sustainable economic development in India. ComFin Research. researchgate.net

Azamat, O., Fayzullokh, S., & Nilufar, A. (2023). The impact of entrepreneurship on poverty reduction. International Journal of Professional Business Review: Int. J. Prof. Bus. Rev., 8(3), 9. unirioja.es

Banerjee, A., Das, K. S., Satapathy, B., & Sahu, B. L. (2024). Agribusiness, Entrepreneurship and Innovation. An Edited Anthology. researchgate.net

Bansah, K. J., Arthur-Holmes, F., & Assan, E. (2023). Climate induced transformation of agriculture to artisanal mining economy in dry regions. Journal of Rural Studies.

Bello, S. M. (2024). Digital transformation in agribusiness and agripreneurship. In Agripreneurship and the dynamic agribusiness value chain (pp. 103-116). Singapore: Springer Nature Singapore.

Calloway, E. E., Carpenter, L. R., Gargano, T., Sharp, J. L., & Yaroch, A. L. (2023). New measures to assess the “Other” three pillars of food security–availability, utilization, and stability. International Journal of Behavioral Nutrition and Physical Activity, 20(1), 51. springer.com

Cernasev, A., & Axon, D. R. (2023). Research and scholarly methods: Thematic analysis. Journal of the American College of Clinical Pharmacy, 6(7), 751-755. [

Chaka, C. (2023). Fourth industrial revolution—a review of applications, prospects, and challenges for artificial intelligence, robotics and blockchain in higher education. Research and Practice in Technology Enhanced Learning, 18, 002-002. apsce.net

Chatterjee, S., Chaudhuri, R., &Vrontis, D. (2022). Examining the impact of adoption of emerging technology and supply chain resilience on firm performance: moderating role of absorptive capacity and leadership support. IEEE Transactions on Engineering Management, 71, 10373-10386. researchgate.net

Costache, B. &Enachescu, V. A. (2025). Bridging the digital divide: leveraging technology for inclusive education in marginalized communities. INTED2025 Proceedings.

David, L. O., Aigbavboa, C., Nwulu, N., & Adepoju, O. O. (2024). Role of Fourth Industrial Revolution (4IR) technologies in water, energy, and food (WEF) resources. In Sustainable synergy: A digital framework for the water-energy-food nexus project delivery in developing economies (pp. 239-286). Cham: Springer Nature Switzerland.

Fidelis, F. I., & Adeyeye, M. M. (2025). Agripreneurship as a Catalyst for Rural Women Empowerment and Sustainable Livelihoods in Northeastern Nigeria. Journal of International Business, Economics and Entrepreneurship, 10(2), 159-169. uitm.edu.my

Gadanakis, Y. (2024). Advancing farm entrepreneurship and agribusiness management for sustainable agriculture. Agriculture. mdpi.com

Giebler, M. (2022). Teaching for career success: An agricultural industry perspective of preparedness needs for diverse workforce development. uark.edu

Giri, Y. N. (2024). Relationship between livelihood capitals and livelihood strategies of Dalit. Contemporary Voice of Dalit. researchgate.net

Gupta, N., & Gupta, P. K. (2024). Robotics and artificial intelligence (AI) in agriculture with major emphasis on food crops. Digital agriculture: a solution for sustainable food and nutritional security, 577-605. researchgate.net

Holland, M. B., Masuda, Y. J., & Robinson, B. E. (2022). Land tenure security and sustainable development. researchgate.net

Ikebuaku, K., &Dinbabo, M. (2023). Exploring the dynamics of agripreneurship perception and intention among the Nigerian youth. International Journal of Management, Entrepreneurship, Social Science and Humanities, 6(2), 94-115. distantreader.org

Kazungu, I. & Kumburu, N. P. (2023). Agripreneurship as a panacea for food security in Tanzania: A systematic review. Heliyon. cell.com

Kazungu, I. & Kumburu, N. P. (2023). Agripreneurship as a panacea for food security in Tanzania: A systematic review. Heliyon. cell.com

Khin, S., & Kee, D. M. H. (2022). Factors influencing Industry 4.0 adoption. Journal of Manufacturing Technology Management, 33(3), 448-467. emerald.com

Lakra, K. (2022). Agripreneurship development as a tool to upliftment of agriculture. academia.edu

Mafenya, K. (2024). Determining the uptake of ICT, GIS, RS, and 4IR technologies in improving food security in the agricultural sector in Gauteng Province, South Africa.

Malhotra, H., Kumar, R., & Yadav, R. (2025). Identifying the enablers and barriers of agripreneurship: a review and research agenda. LBS Journal of Management & Research, 1-15. emerald.com

Matla, H. M. D. (2025). Gender Mainstreaming in Agricultural Extension Education. Transforming Agriculture through Modern Extension Education Techniques, 195. researchgate.net

McDonald, N., Luke, J., & Cosby, A. (2024). Non-technical skills needed for the current and next-generation agricultural workforce. Agriculture. mdpi.com

Mtshali, T. L. (2026). Affordable Fourth Industrial Revolution Tools to Enhance Subsistence Farming: A Case Study of Small-Scale Farmers in Kwa Dlangezwa, Kwa Zulu-Natal, South Africa. Journal of Cultural Analysis and Social Change. jcasc.com

Muangmee, C. (2026). Agricultural Enterprises in South and Southeast Asia: Research Trends, Thematic Evolution, and Knowledge Structure.. Sarhad Journal of Agriculture.

Muktar, B. G., Idrissa, Y. L., Orifah, M. O., & Nwachukwu, I. M. (2022). Innovation centric extension services and information communication technologies benevolence: Implications for local innovation generation and agripreneurial promotion for sustainable food systems. Journal of Agricultural Extension, 27(1), 26-37. researchgate.net

Ndedi, A, A, (2004) Corporate entrepreneurship in the advertising industry in Cameroon. Unpublished Master dissertation. University of South Africa.

Ndedi, Alain Aime, (2009), Entrepreneurship and Wealth Creation at the African Bottom of the Pyramid (March 30, 2009). Available at SSRN: https://ssrn.com/abstract=1799125 or http://dx.doi.org/10.2139/ssrn.1799125. Accessed on the 6, May, 2026.

Ndedi, A.A. (2013), Challenges and perspectives facing the development of entrepreneurship education and training in South Africa, World Journal of Entrepreneurship, Management and Sustainable Development, Vol. 9 No. 2/3, pp. 126-132. https://doi.org/10.1108/WJEMSD-01-2013-0009. Accessed on the 6, May, 2026.

Ndedi, A, (2013a). "The Incorporation of Entrepreneurship in Black Economic Empowerment Programmes in South Africa," E3 Journal of Business Management and Economics., E3 Journals, vol. 4(9), pages 195-199.

Ndedi, A, A, (2013b), The Development of Innovative Techniques in the Fight Against White Collar Crimes. Unpublished PhD Thesis. Charisma University.

Ndedi, A, A, (2013c), Challenges and perspectives facing the development of entrepreneurship education and training in South Africa. World Journal of Entrepreneurship, Management and Sustainable Development (2013) 9 (2-3): 126-132.

Ndedi, Alain Aime, (2015), Rethinking Entrepreneurship Education and Training in Cameroon. Available at SSRN: https://ssrn.com/abstract=2647998 or http://dx.doi.org/10.2139/ssrn.2647998. Accessed on the 6, May, 2026.

Ndedi, Alain Aime, (2017), The Development of Agripreneurship in Cameroon (April 6, 2017). Available at SSRN: https://ssrn.com/abstract=2947711 or http://dx.doi.org/10.2139/ssrn.2947711. Accessed on the 6, May, 2026.

Ndedi, Alain, Aime and Feussi, Polycarpe, (2017), Unpacking Agripreneurship (April 5, 2017). Available at SSRN: https://ssrn.com/abstract=2947103 or http://dx.doi.org/10.2139/ssrn.2947103. Accessed on the 6, May, 2026.

Nguyen-Trung, K. (2025). ChatGPT in thematic analysis: Can AI become a research assistant in qualitative research?. Quality & Quantity. springer.com

Olatidoye, O. P. (2024). Agripreneurship curriculum development: quest for food security and sustainability. In Agripreneurship and the Dynamic Agribusiness Value Chain (pp. 383-404). Singapore: Springer Nature Singapore.

Pal, D. & Sharma, L. (2023). Barriers faced by agripreneurs in starting and operating agriventures under ACABC scheme: An analysis. Agricultural Reviews.

Polychronopoulos, D. & Nguyen-Duc, A. (2024). Migrant entrepreneurship support in Europe: a PRISMA systematic literature review. F1000Research. nih.gov

Putra, E. S., Amalia, R., & Pane, Y. (2025). Entrepreneurial Competence and Business Sustainability of Rural Agripreneurs in West Sumatra. Maroon Journal De Management. gensain.com

Seyam, A., Barachi, M. E., Zhang, C., Du, B., Shen, J., & Mathew, S. S. (2026). Enhancing resilience and reducing waste in food supply chains: a systematic review and future directions leveraging emerging technologies. International Journal of Logistics Research and Applications, 29(2), 141-175. tandfonline.com

Shrestha, R. (2022). Skills Development System: Soft Infrastructure for Leapfrogging and Feedback. The Comprehensive Asia Development Plan 3.0 (CADP 3.0): Towards an Integrated, Innovative, Inclusive, and Sustainable Economy, 277. eria.org

Smidt, H. J. & Jokonya, O. (2023). A framework to develop technopreneurs in digital agriculture value chains in South Africa. Journal of Foresight and Thought Leadership. joftl.org

Sumelius, J., Kumburu, N., & Njuga, G. (2026). The Role of Agripreneurship on Food Security: Mediating Role of Innovation. Rural Development. vdu.lt

Tadesse, B. & Ahmed, M. (2023). Impact of adoption of climate smart agricultural practices to minimize production risk in Ethiopia: A systematic review. Journal of Agriculture and Food Research. sciencedirect.com

Yordanova, Z., &Nozari, H. (2025). Harnessing cyber-physical systems and digital twins for industrial innovation and economic resilience. In Dynamic and Safe Economy in the Age of Smart Technologies (pp. 33-48). IGI Global Scientific Publishing.