

The importance of digital platforms to improve food security

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Abstract:

This study aims to clarify the role of digital platforms implemented by some regional and international organizations concerned with food security, focusing on the most popular, particularly FAO Digital Services Portfolio, IFC Global Food Security Platform, and the Farmerlien as an African platform.

Digital platforms that are used by specialist institutions are important for fighting food insecurity, famine and poverty across the world, by improving agricultural, increasing food production, and the country's capacity for food storage. In addition, safe food is essential to human health and well-being. it also supports national economies, trade and tourism, stimulating sustainable development.

Keywords: Food security, famine, digital platforms, FAO.



1. Introduction

Food security means having, at all times, both physical and economic access to sufficient food to meet dietary needs for a productive and healthy life. A family is food secure when its members do not live in hunger or fear of hunger. Food insecurity is often rooted in poverty and has long-term impacts on the ability of families, communities and countries to develop and prosper (USAID). The importance of food security is increasing every year, since the safety of food raw materials and food products is one of the most important variables affecting human survival and health. Prolonged undernourishment stunts growth, slows cognitive development, and increases susceptibility to illness (USAID).

Many organizations, including UN agencies, NGOs and other actors, work with governments to meet the most urgent needs and address the drivers of rising food insecurity and famine risk in the longer-term. In 2022 alone, humanitarian actors provided life-saving assistance to almost 160 million people (United Nations, 2023). So, several regional specialist institutions and international organizations have launched digital platforms to reduce food insecurity and fight famine.

Indeed, this paper aims at making clear the importance of digital platforms and their impact on food security by focusing on the most popular, particularly, the IFC Global Food Security Platform, and FAO Digital Services Portfolio, as well as the Farmerlien as an African platform.

- **Problems of research:**

To understand the topic, the research problem can be proposed as follows:

To what extent can the digital platforms contributing to fighting famine and improve food security?

- **Paper objectives**

- Food security is an important component of national security;
- Digital service for food insecurity became indispensable after covid-19 pandemic;
- Achieving one of the Sustainable Development Goals;
- Reduce the world's expenditure on conflict prevention, instead rehabilitation rural infrastructure and agricultural lands.

- **A research method:** In order to achieve the study's objectives, we have relied on a descriptive approach by presenting how digital platforms in question do work.

2- Food security definition

The formal definition of the "food security" first emerged in science in 1974 at the Rome World Meeting on Food Problems, and the notion was then more extensively and precisely articulated at a similar conference in 1996 (Djurayeva Dildora Umarjonovna, 2022). In this context, "food security" is commonly considered, meaning when it is physically and economically viable to use it. In terms of physical food availability, it is normal to consider the number and variety of food products that fulfill the effective demand

in their areas of demand. It refers to a region or country's food supply (Djurayeva Dildora Umarjonovna, 2022).

Food security means having, at all times, both physical and economic access to sufficient food to meet dietary needs for a productive and healthy life. A family is food secure when its members do not live in hunger or fear of hunger (USAID). While Food insecurity is often rooted in poverty and has long-term impacts on the ability of families, communities and countries to develop and prosper (USAID).

However, according to FAO 2001, food security is a situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FOA, 2006). While food insecurity exists when people do not have adequate physical, social or economic access to food as defined above (A. N. Ihab, 2015). However, household food security is the application of this concept to the family level, with individuals within households as the focus of concern (Hani Jameel Hamad, 2016).

Based on the previous, food security is essentially built on the following dimensions (FOA, 2006):

- **Food availability:** The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid).
- **Food access:** Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources).
- **Utilization:** Utilization of food through adequate diet, clean water, sanitation, and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs in food security.
- **Stability:** To be food secure, a population, household, or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security

Food security remains, in both quantitative and qualitative terms, a fundamental human requirement (Roberto Capone, 2014).

The importance of food security is increasing every year, since the safety of food raw materials and food products is one of the most important variables affecting human survival

and health. Prolonged undernourishment stunts growth, slows cognitive development and increases susceptibility to illness (USAID).

3- Classification of food insecurity

To measure food insecurity, we need to define the main stages of hunger according to descending order, from most severe to least severe:

3-1 Famine

It is defined as a situation in which there is not enough food for a great number of people, causing illness and death (Cambridge dictionary). It is also a situation in which a substantial proportion of the population of a country or region is unable to access adequate food, resulting in widespread acute malnutrition and loss of life by starvation and disease (UN Refugee Agency, 2024). The hunger crisis, when it does occur, means that there is an extreme shortage of food, that is caused by conflict, economic shocks, climate change, and soaring prices for food and fertilizer are all combining in a perfect storm to create a hunger crisis of unprecedented proportions (UN WFP, 2023).

3-2 Food safety

Food safety, synonymous with food hygiene, embraces anything in the processing, preparation, or handling of food to ensure it is safe to eat (Griffith, 2006). To ensure human food safety, we need to avoid obtaining food from unsafe sources, inadequate cooking or heat processing, improper cooling, intervals of 12 h or more between preparation and eating, and poor hygiene (Bruhn, 1999). Food safety is important for the people's general health and daily life, economic development, social stability, and the governments and country's image (Hussain, 2013). For food safety lies not only with producers and processors of food, but also governments and consumers themselves (Griffith, 2006).

2-1 Malnutrition

Malnutrition (malnourishment) happens when an individual's habitual food consumption is insufficient to provide the amount of dietary energy required to maintain a normal, active, healthy life (WHO, 2023). It is used to describe a deficiency, excess, or imbalance of a wide range of nutrients, resulting in an adverse effect on body composition and function (Saunders J, 2024). While as a healthy term, malnutrition, in all its forms, includes undernutrition (wasting, stunting, and being underweight), inadequate vitamins or minerals, overweight, obesity, and resulting diet-related noncommunicable diseases. (WHO, 2024)

Therefore, the term malnutrition addresses 3 broad groups of conditions: (WHO, 2024)

- 1- An underweight person whose body weight is considered too low to be healthy;
- 2- Micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess;
- 3- Overweight, obesity, and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes, and some cancers).

Table 1 : Prevalence of undernourishment, 2005–2023

	Prevalence of undernourishment									
	2005	2010	2015	2017	2018	2019	2020*	2021*	2022*	2023*
	(%)									
WORLD	12.2	8.7	7.7	7.1	7.2	7.5	8.5	9.0	9.1	9.1
AFRICA	19.9	15.9	16.0	16.7	17.1	17.4	18.8	19.3	19.9	20.4
Northern Africa	7.8	6.2	5.6	6.2	6.2	6.0	6.2	7.1	7.4	7.8
Sub-Saharan Africa	23.0	18.2	18.4	19.2	19.6	20.0	21.7	22.1	22.7	23.2
Eastern Africa	32.2	24.4	24.5	26.3	26.5	27.4	28.5	29.0	29.6	28.6
Middle Africa	33.7	22.7	23.3	23.8	24.5	25.1	27.8	28.2	27.5	30.8
Southern Africa	4.7	7.1	8.3	6.9	7.0	7.1	8.1	9.1	9.5	9.6
Western Africa	12.2	11.6	11.5	11.5	12.0	11.8	13.7	13.8	15.0	16.0
ASIA	13.9	9.3	7.5	6.3	6.3	6.6	7.8	8.2	8.2	8.1
Central Asia	13.8	6.4	3.9	3.4	2.9	2.6	3.2	3.2	3.1	3.0
Eastern Asia	6.9	2.7	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
South-eastern Asia	17.0	11.6	7.8	5.9	5.7	5.5	5.6	5.8	6.1	6.1
Southern Asia	20.2	14.9	12.7	10.2	10.2	11.1	13.6	14.5	14.2	13.9
Western Asia	8.7	6.8	9.3	10.2	10.6	10.7	11.0	11.4	12.1	12.4
<i>Western Asia and Northern Africa</i>	8.3	6.5	7.6	8.3	8.6	8.5	8.8	9.4	9.9	10.3
LATIN AMERICA AND THE CARIBBEAN	8.9	6.1	5.2	5.7	5.9	5.6	6.5	6.9	6.6	6.2
Caribbean	18.1	14.3	12.8	12.9	13.7	13.8	15.5	15.4	16.8	17.2
Latin America	8.2	5.5	4.6	5.2	5.3	5.0	5.8	6.3	5.9	5.4
Central America	7.7	6.4	6.4	6.0	6.0	5.6	5.6	5.8	5.9	5.8
South America	8.4	5.1	3.9	4.9	5.0	4.8	5.9	6.5	5.9	5.2
OCEANIA	6.9	7.3	6.9	6.8	7.1	7.0	6.7	7.5	7.1	7.3
NORTHERN AMERICA AND EUROPE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5

SOURCE: FAO. 2024. FAOSTAT: Suite of Food Security Indicators. [Accessed on 24 July 2024]. <https://www.fao.org/faostat/en/#data/FS>. Licence: CC-BY-4.0.

3-The common Food Security Platforms

To secure and safe food, many local and global specialist institutions have launched digital platforms, so this study is going to focus on the importance of this theme.

3-1 IFC Global Food Security Platform

The International Finance Corporation IFC — a member of the World Bank Group — is the largest global development institution focused on the private sector in emerging markets. It works in more than 100 countries. In fiscal year 2024, IFC committed a record \$56 billion to private companies and financial institutions in developing countries, leveraging private sector solutions and mobilizing private capital to create a world free of poverty on a livable planet (IFC, 2024).

IFC has launched its Global Food Security Platform to respond to the food security crisis, with the \$6 billion financing facility to support vulnerable communities. This platform supports the uptake of digital technologies in agricultural supply chains, as digital technologies can help strengthen food production by improving access to markets and financing for smallholder farmers and boosting yields (Buckholtz, 2022)

It also helps to finance continued trade flows of vital food supplies to populations in need, increase the availability of fertilizers and other critical supplies for farmers in vulnerable regions, and help private companies make new investments in longer-term solutions to the hunger crisis-with a focus on making local food systems in emerging markets more diversified, sustainable, and productive (Buckholtz, 2022)

3-2 FAO Digital Services Portfolio

The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger. With 195 members - 194 countries and the European Union, FAO works in over 130 countries worldwide in order to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives (FAO, 2023).

The FAO Digital Services Portfolio (DSP) that designed by the digitalization and Informatics division (CSI), it's a cloud-based platform designed to disseminate information in the food and agriculture and related sectors and scale up agricultural services for smallholders and family farmers (FAO). The DSP imports data and feeds it in a structured way, grouped into themes, with each theme addressing one distinct subject matter to the mobile devices of interested parties via a smartphone web app (FAO).

3-3 The four Digital Services Portfolio Bases are

Weather and Crop Calendar: This theme offers reliable weather forecasts, combined with an alert system that allows users to adjust their schedule and production activities based on meteorological data to highlight potential risks and help increase resilience. (FAO).

- Livestock: This theme is used to provide relevant information to livestock owners on animal production and health, including the control of animal diseases, and gives advice on how to optimize livestock feeds. The information provided through the livestock app aims at helping reduce losses in assets and optimize productivity using locally available resources.
- Agri marketplace: This theme is structured to deliver information to farmers on prices of important commodities in the surrounding markets. (FAO).

- E-Nutri Food : This service provides users with information on farm production and conservation techniques of nutritious foods, as well as on value, nutritional value, and consumption. Adequate information concerning the quality and combination of essential nutritional values of food are vital in fighting undernutrition, stunting and food insecurity.

Moreover, The DSP has been recognized as a digital public good in 2022, to help make available better data and models and provide more targeted services to public and private sector partners to increase inclusion, resilience and adaptation.

3-4 Farmerliene

Farmerliene launched in 2013, with operations serving 800 Farmers across Ghana and a massive ambition to change a whole sector, its impact and growth have been exceptional year on year, thanks to its partner, but there is much more to come.

There are 10 million smallholder farmers in west Africa (Farmliene, 2022) Farmerline secures \$6.4 million Pre-Series A investment & \$6.5 million debt to help African farmers and agribusinesses make more (Farmliene, 2022).

3-5 Farmerlien mission

working with smallholder farmers to reduce the impact of farming on the environment mainly through (mission13, 2023):

- Farmer Services

Support Smallholder Farmers to adopt drought-resistant seeds, use a combination of organic and inorganic fertilizers, crop rotation best practices and transition to solar-powered equipment at scale.

- Tailored Financing

Partnerships with local financial institutions, development banks, and more, to design and provide affordable and accessible input financing schemes to close the over US\$2.5 billion annual climate financing gap for smallholder farmers in Africa.

- Strategic Partnerships

With local agri-businesses and farmer groups to reach farmers at scale, and global corporations to empower farmers through monitoring, traceability, and intelligence tools.

7-Conclusion

Tackling food insecurity includes supporting vulnerable communities to reduce famine and malnutrition as well as to guarantee food safety by boosting the flow of vital commodities to emerging markets, and help private companies make new investments in the longer term. It is essential also to recognize that food security is an important component of national security.

For this reason, many local and global specialist institutions have launched digital platforms. They aim to provide nourishment through increasing food production and the country's capacity for food storage, processing, and logistics, as well as making food systems more diversified and sustainable. The three most common digital platforms are: the IFC Global Food Security Platform and the Digital Services Portfolio provided by the FAO, as well as Farmerline as an African platform.

Indeed, a digital service for fighting famine and scouring food aims at making useful data, information and statistics available and accessible to governments, and strategic partners. It is organizational effort aiming at promoting the digitalization and modernization in agriculture, through an efficient use of digital for major improvements in the food and agriculture sector. Therefore, there has been marked progress in reducing poverty over the past decades. In 2015, 10 per cent of the world's population lived at or below \$1.90 a day while in 2023 almost 700 million people around the world were subsisting on less than \$2.15. However, the outlook is grim for the nearly 50 percent of the world's population who live on less than \$6.85 a day – the measure used for upper-middle-income countries. (United Nations)

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