<u>**Terms of Reference**</u>

<u>**Internship with the World Bank Agriculture and Food Global Practice**</u>
<u>**Data-Driven and Digital Agriculture Team**</u>

<u>**Background**</u>

The Data-Driven Digital Agriculture (DDDAg) Team, in the Global Engagement Unit of the Agriculture and Food Global Practice, leads the global analytical and advisory work on data-driven digital agriculture at the Work Bank.

Digital Agriculture (DA) is a catalyst with wide-ranging potential to transform food systems and affect the lives of billions. Digital technologies dramatically change interactions between the unparalleled number of actors across the food system comprising farmers, upstream and downstream enterprises, consumers, and public sector institutions. With a growing two-thirds of the world population having a mobile subscription and nearly half using the internet, digital technologies can offer the 570 million farmers worldwide solutions to make more precise decisions on labor, capital, natural resource management, lower the costs of linking them to the upstream and downstream markets, increase transparency of agricultural value chains through improved access to information and product traceability, and enhance the knowledge of the world's 7.5 billion consumers on food choice aspects such as price, nutrition, production practices, climate change and environmental impacts.

The role of public sector is to maximize societal gains of improved efficiency, equity and environmental sustainability that stem from the adoption of digital agriculture, while mitigating the potential risks. Supply and use of digital technologies in agri-food systems is fundamentally a private sector activity, driven by private gains of the profit-maximizing producers and utility-maximizing consumers. However, often private economic agents may not have the right set of incentives to make rational decisions due to the existing market or policy failures, lack of public good provision, or their bounded rationality (i.e. not having enough information about the choice options and the impacts of their decisions). Some characteristics of the digital goods may also make it more challenging for private sector to supply and use digital technologies in agricultural sector. In such cases, the entry point for public policy is to influence the incentives and decisions of private agents with the goal of maximizing efficiency gains at the societal level. In addition, the role of public sector is to maximize the societal gains that stem from the adoption of digital agriculture but may not be fully internalized by private economic agents, such as equity and environmental sustainability. The latter consists of creating a set of incentives to prompt a certain behavior among private economic agents with the goal of maximizing the societal benefits, while also mitigating potential (and sometimes unknown) risks that digital agriculture may bring.

<u>**Objective**</u>

The DDDAg team is looking for support for one of its key research areas **investigating the application of artificial intelligence and machine learning in agriculture and food systems**. The intern will start with a broad search of global examples and the landscape of artificial intelligence and machine learning in agriculture and food systems. The research includes how start-ups and innovators develop and use data and technologies to improve production, processing, marketing, and agriculture produce and food quality. The intern will also research the application of artificial intelligence and machine learning in agriculture and food systems in South Korea. All the findings will be compiled and used for webinars, blog posts, and learning content in Open Learning Campus (OLC

Key deliverables:

1. **Learning note, presentation, and a blog**

a) Research, write, improve the report based on feedback and review, and finally make it publishable. The report will synthesis note and compile findings of the desk research and primary interviews.
b) Convert the report into a slide deck and present it to the DDDAG team and a wider audience. The presentation should have text, graphics, visuals, and pictures.
c) Write a blog on artificial intelligence and machine learning in agriculture and food systems.

2. **Organizing Webinars**

Establishing linkage with Korean public and private sectors agencies working with artificial intelligence and machine learning in agriculture and food systems and helping the DDDAg team organize learning events and webinars.

Duration of Internship:

The internship will be available for six months, with a possibility of an extension dependent on intern's work performance and availability.

Desired skills and qualifications:

- Preferably an undergraduate degree in Economics, Agronomics, Public Policy, Law, Data Science or related discipline or at least enrolled and pursuing one; a cross-disciplinary background in both data or digital technologies (e.g. computer or data science) and public policy would be highly valued
- Interest in the Agriculture and Food sector; background studies and experience on this is desirable;
- Interest in data and digital innovations; background studies and experience on this is desirable;
- Interest in public policy, particularly on data governance would be valuable;
- Ability to write and communicate confidently in English;
- Interest and knowledge in policy environment in other countries also helpful; as would ability to speak language of these other countries

Financial Compensation

Intern will receive a grant from the Korea FAO Association for the six-months duration of internship under the Overseas Agricultural Sector Intern Scholarship (OASIS) Program hosted by the Ministry of Agriculture, Food and Rural Affairs (MAFRA), Republic of Korea.

Reporting

Intern will work closely with DDDAg team and report to Parmesh Shah, Global Lead, Data-driven Digital Agriculture.

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