5G O-RAN: Optimizing Efforts in the Production and Sale of Agricultural Products
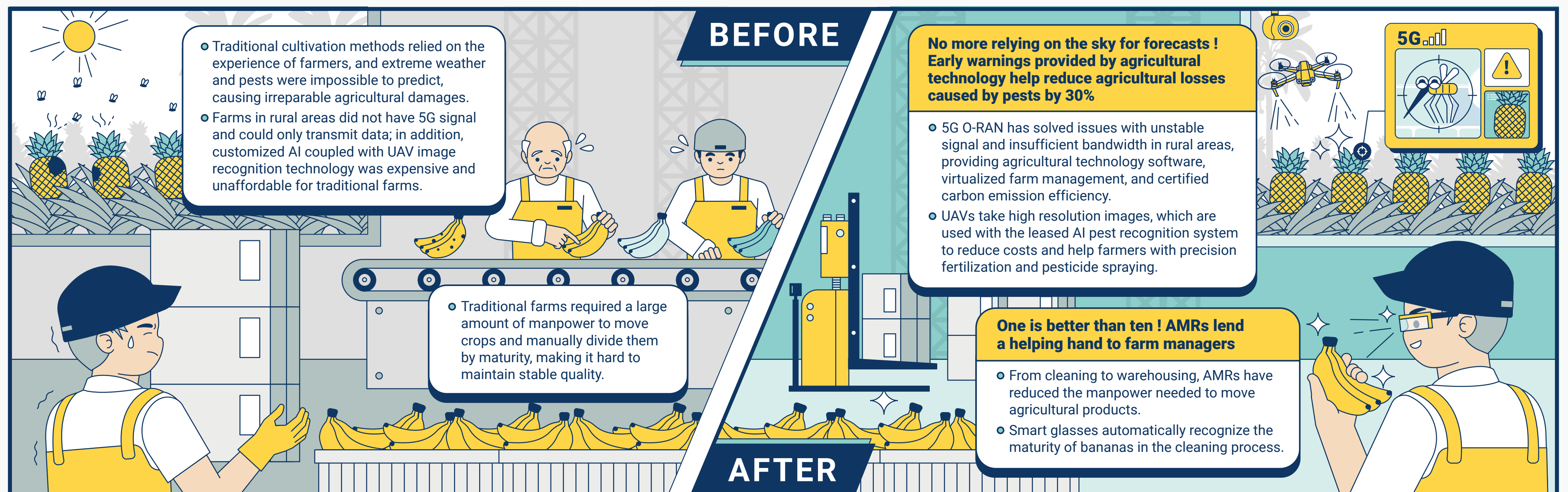
Integrate All-Round Green 5G Private Network AIOT Smart Agricultural Applications and Plan Global Market Promotion

The imbalance between production and sales as well as labor shortages in agriculture have always been massive challenges for farmers. A 5G O-RAN standalone private network has allowed the effective implementation of an affordable smart agriculture system via a leasing model, and established a smart farm production management platform combined with UAV and image recognition, among other information and communication technologies.

Project Results

#Increased Operational Efficiency and Income | Improved efficiency through automated mobile robots (AMR). Increased the overall revenue of farms by 15% using AI and 5G technologies.

#Promoted the Industry's Net Zero Transition | Obtained the international certification for carbon emissions in the key role of agriculture in ESG through new applications of 5G private networks.

BEFORE

- Traditional cultivation methods relied on the experience of farmers, and extreme weather and pests were impossible to predict, causing irreparable agricultural damages.
- Farms in rural areas did not have 5G signal and could only transmit data; in addition, customized AI coupled with UAV image recognition technology was expensive and unaffordable for traditional farms.

Traditional farms required a large amount of manpower to move crops and manually divide them by maturity, making it hard to maintain stable quality.

AFTER

No more relying on the sky for forecasts ! Early warnings provided by agricultural technology help reduce agricultural losses caused by pests by 30%

- 5G O-RAN has solved issues with unstable signal and insufficient bandwidth in rural areas, providing agricultural technology software, virtualized farm management, and certified carbon emission efficiency.
- UAVs take high resolution images, which are used with the leased AI pest recognition system to reduce costs and help farmers with precision fertilization and pesticide spraying.

One is better than ten ! AMRs lend a helping hand to farm managers

- From cleaning to warehousing, AMRs have reduced the manpower needed to move agricultural products.
- Smart glasses automatically recognize the maturity of bananas in the cleaning process.

5G

Key Technology #5G O-RAN #UAV #Smart Glasses **Technology Unit** LEADTEK RESEARCH, INC. **Domestic Trial Site** Pingtung county