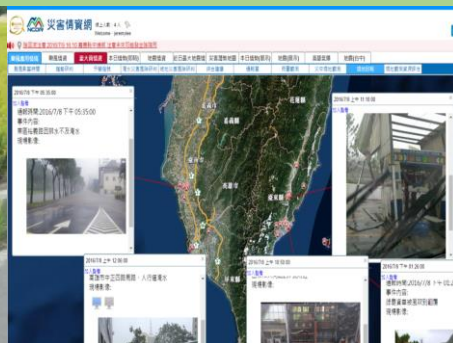


Reducing Food Waste by Using Information & Communications Technology (ICT) and Innovative Technologies— *A Case Study of Agriculture Industry in Chinese Taipei*



Contents

- ◆ Introduction

- ◆ Enhance farmers' autonomous disaster prevention ability

- ◆ Rice navigation industry

 - (1) HUNG CHANG Rice Miller

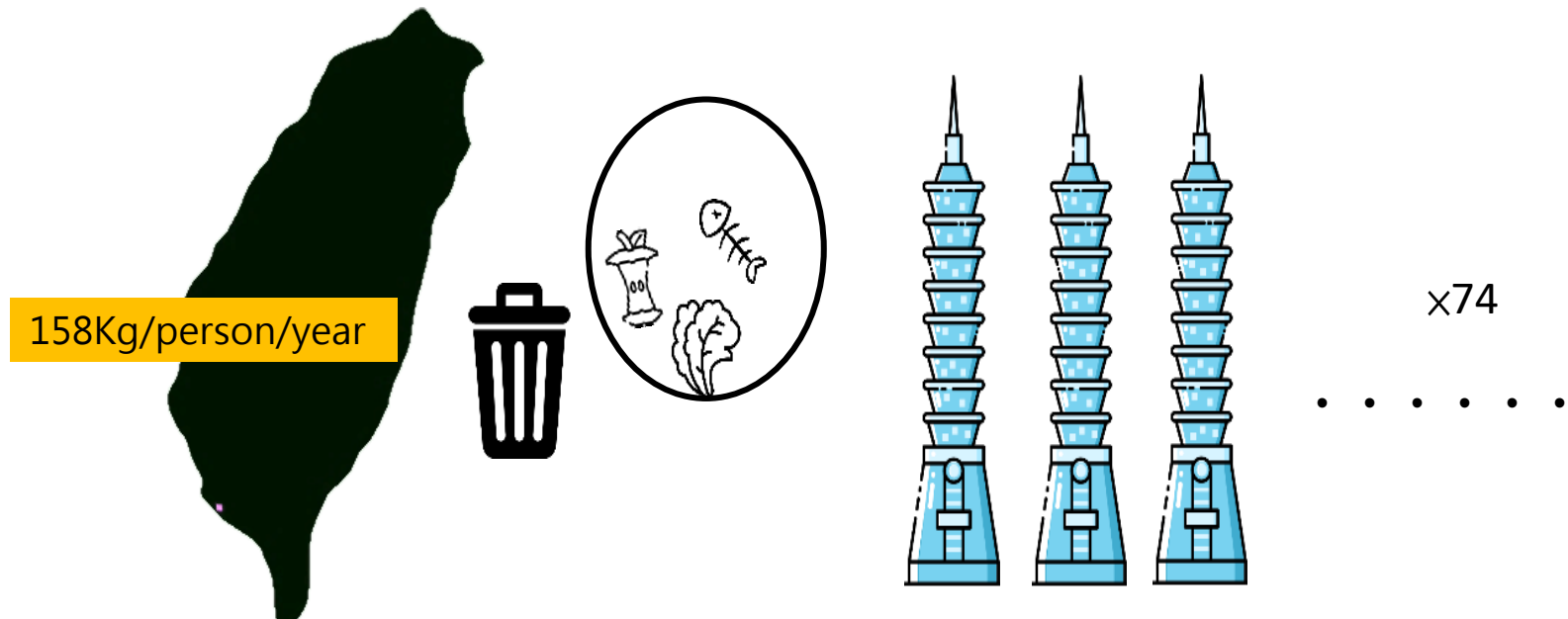
 - (2) ALMIN ENTERPRISE Co., Ltd.

 - (3) RICE HOUSE UNIVERSAL Co., Ltd

- ◆ Conclusion

Introduction

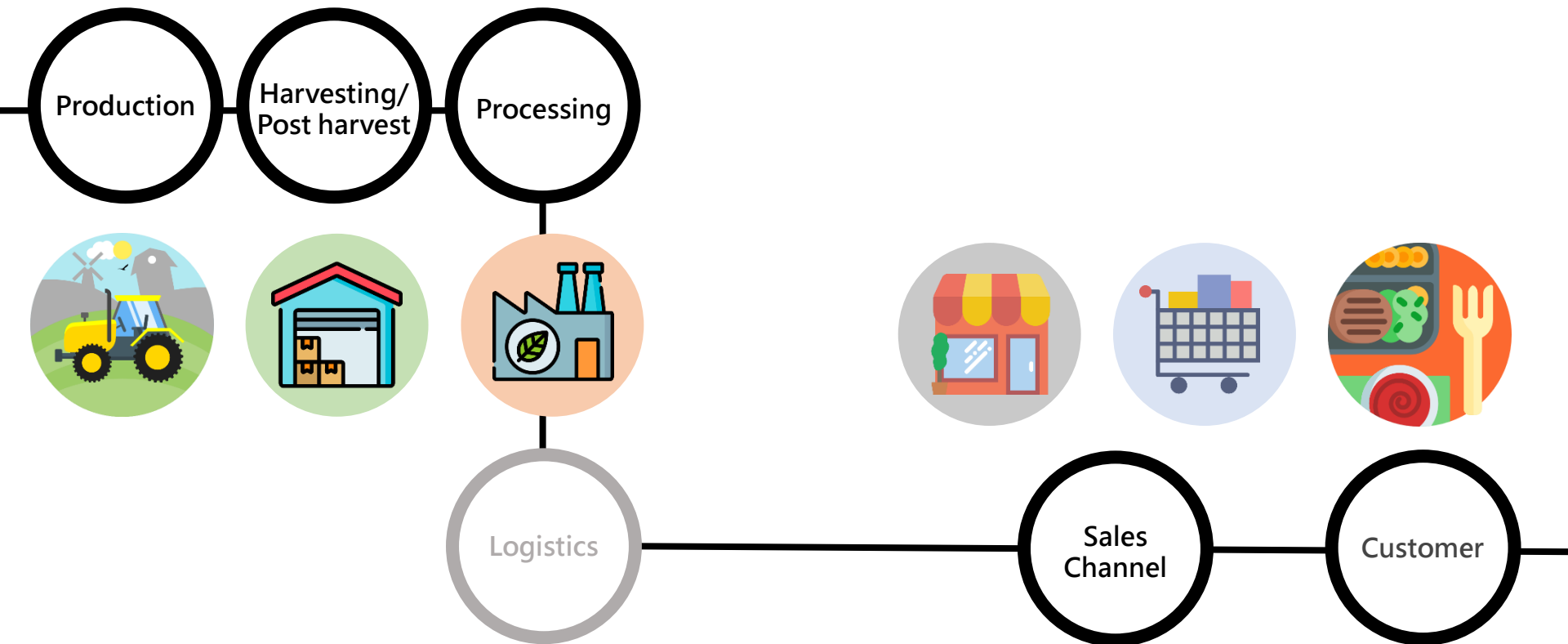
- ◆ According to MOHW, the average annual food waste is about 158 kilograms per person in Chinese Taipei.
- ◆ The average daily kitchen allowance will stack "74 Taipei 101 buildings".



Introduction

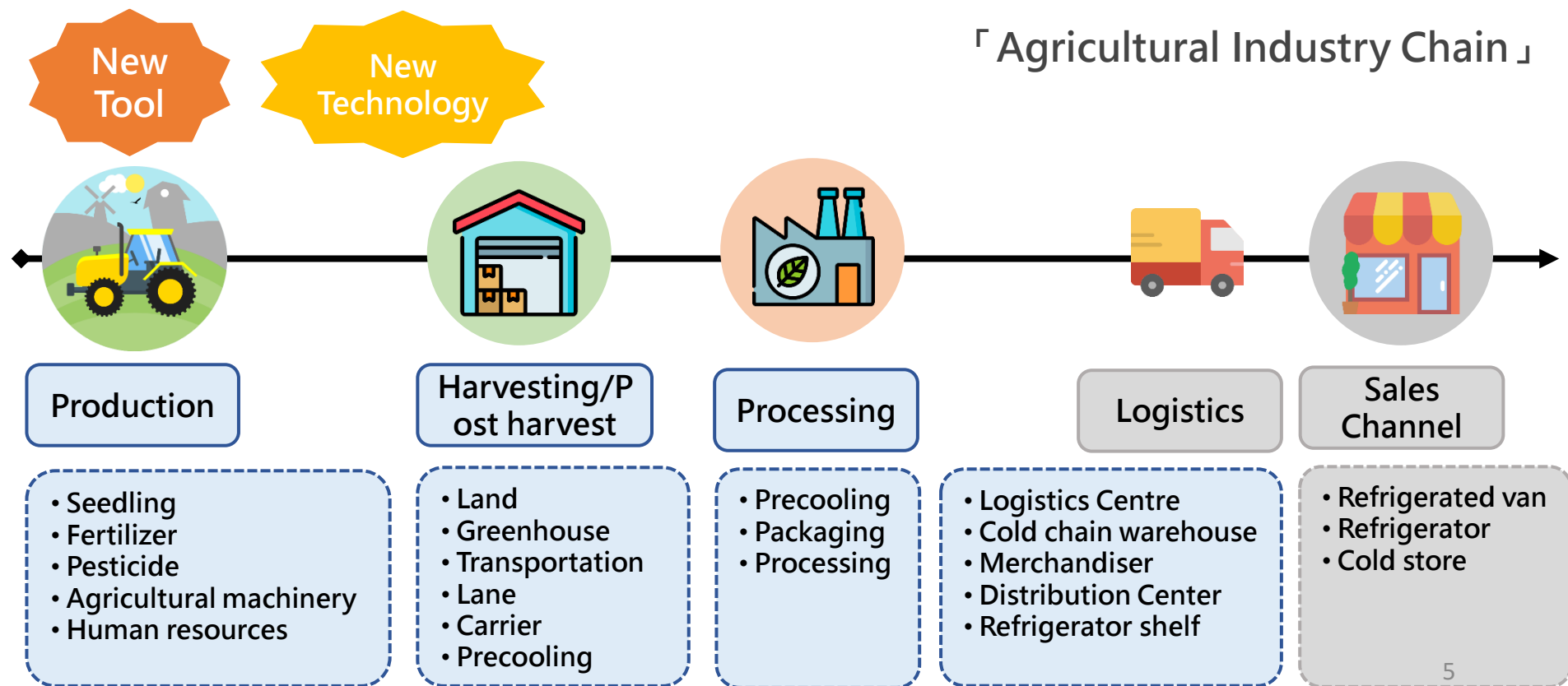
- ◆ Food waste includes two problems: food loss and food waste.
- ◆ Food supply chain can be roughly divided into five stages : production, harvesting/post-harvest, processing, marketing channels, and consumer side. In most parts of the world, food loss occurs in the first three stages.

Global food losses and food waste - FAO



Introduction

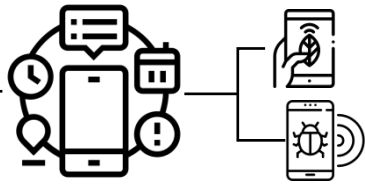
Aiming at the three main production stages : production, harvesting/post-harvest and processing, we attempt to introduce new tools such as IoT and ICT gather the wisdom of R&D personnel to carry out research and development of new technologies, to provide industry and farmers with strategies for making decisions decision-making in value chain activities.



Enhance farmer's autonomous disaster prevention ability



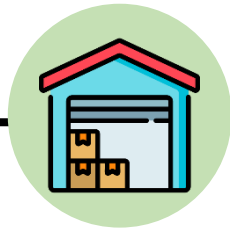
Production



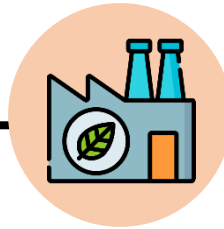
Crop disaster early warning system



Production



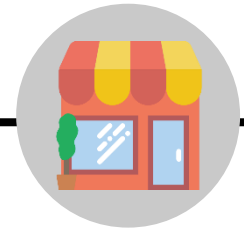
Harvesting/
Post harvest



Processing



Logistics



Sales
Channel

Enhance farmer's autonomous disaster prevention ability



Production



Before the disaster

- Farmer training
- Setup weather stations
- Prevention technology
- Disaster Notification APP



- Agricultural Information service platform for disaster



- Crop disaster alert areas



Disaster

After the disaster



- UAV accelerate the efficiency of disaster survey



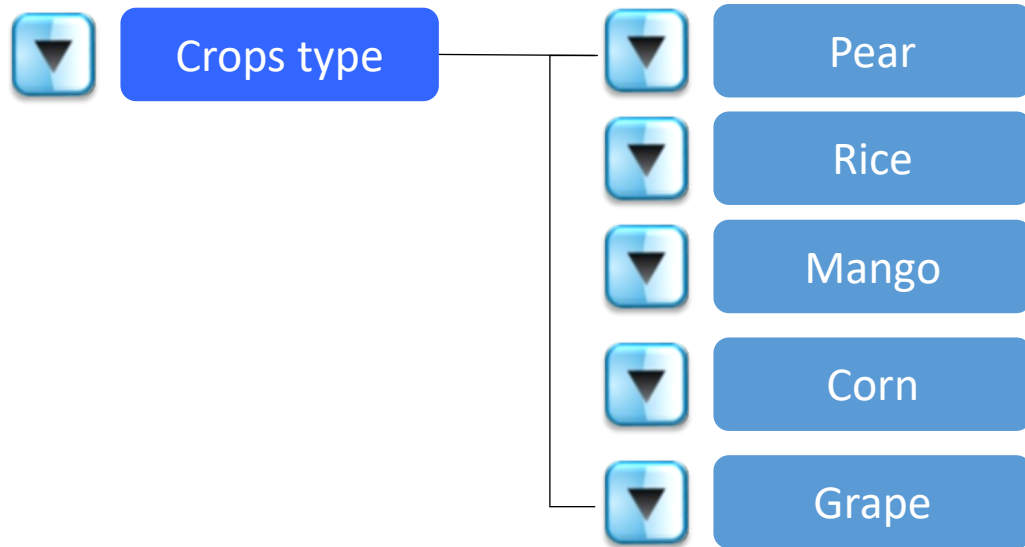
- Crop recovery technology

Enhance farmer's autonomous disaster prevention ability

Crop disaster early warning system(1/3)



Production



▼ Cultivated area

▼ Agricultural value

Damage Control recommendation

Typhoon



High temp.



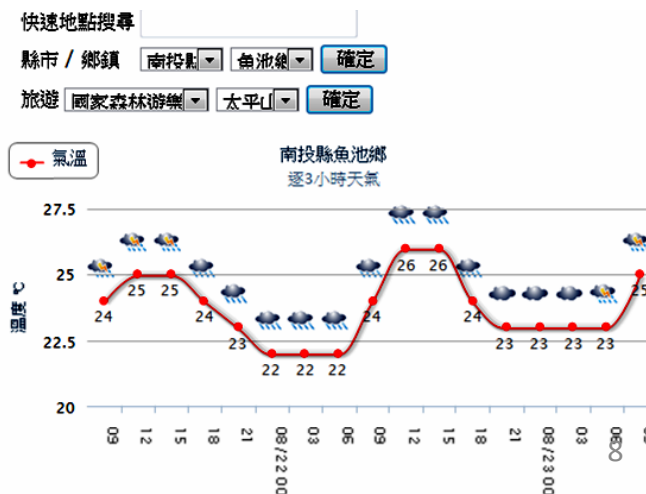
Chilling



Heavy rainfall



Weather forecast :
4/19/2019~4/26/2019



Enhance farmer's autonomous disaster prevention ability

Crop disaster early warning system(2/3)



Production

The screenshot shows the homepage of the 'Crop Disaster Early Warning Platform' (農作物災害預警平台). The header includes a navigation bar with links like '業務簡介', '作物災害預警', '農業專區預警', '氣象資訊查詢', '農試所觀測資料', '氣象災害發生率', '防災計畫執行成果', '廿四節氣', and '單位換算'. Below the header is a '最新消息' (Latest News) section with a list of events from 2017-07-01 to 2017-11-07. The main content area features three large maps of Taiwan under the headings '作物災害預警', '農業專區預警', and '氣象資訊查詢'. At the bottom, there are several smaller icons for '農試所機構典藏', '作物優質生產綜合資訊平台', '創新育成中心', '農試所觀測系統', '國際農業數位知識交流網路平台', '農業主題館', '圖書館', and '昆蟲標本館'. The footer contains contact information for the Executive Yuan Agricultural Committee and TARI, including the address, phone number, fax, and website.

Crop disaster early warning system

<http://disaster.tari.gov.tw/>

Enhance farmer's autonomous disaster prevention ability

Crop disaster early warning system(3/3)



Production

Disaster early warning – APP

(iOS)



(Android)



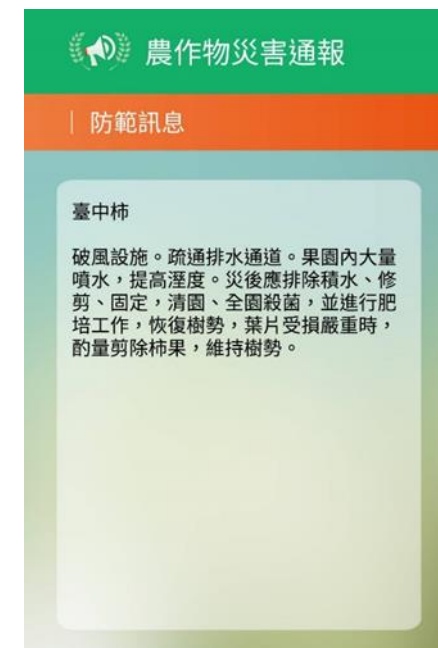
Weather forecast

農作物災害通報				
臺中柿一週天氣預報				
日期	08/20 週一		08/21 週二	
時間	白天	晚上	白天	晚上
天氣				
最高溫℃	27.0	21.0	27.0	22.0
最低溫℃	17.0	17.0	17.0	17.0
風速	1.0(1)	1.0(1)	1.0(1)	1.0(1)
風向	南	北	南	東北
相對濕度	83	96	80	94
降雨機率	60	10	40	10

Disaster warning light



Prevention advice



Rice navigation industry

Production Issues

- ❑ Climate impacts.
- ❑ Planting only depends on experience, with fewer data to support it.
- ❑ It's hard to track down production problems.

Harvesting Issues

- ❑ Efficiency of low temperature control in barn.
- ❑ The specifications and prices of foreign equipment are not suitable for the domestic market

Processing Issues

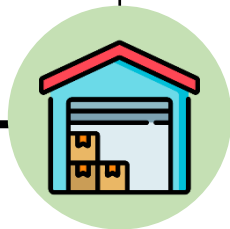
- ❑ Food waste caused by overproduction

Channel Issues

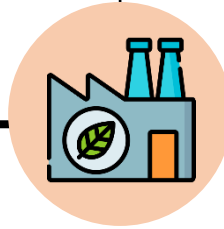
- ❑ Rice industry is facing transformation.
- ❑ Rice industry enters the Red Sea market.



Production



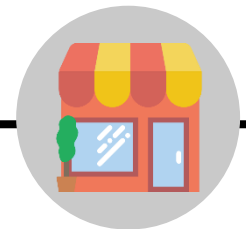
Harvesting/
Post harvest



Processing



Logistics



Sales
Channel

Rice navigation industry

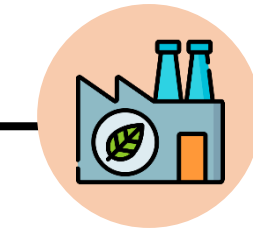
HUNG CHANG RICE MILLER

Development and Evaluation of Agriculture Information Service Platform for Rice Health Management and Warehousing Management.

- Intelligent Expert Management System for Rice
- Scientific Field Management Information & Field Management Suggestions

ALMIN ENTERPRISE CO., LTD

The development and application of intelligent monitoring and management systems for grain storages



Processing



Logistics



Sales Channel

RICE HOUSE UNIVERSAL CO., LTD.

Online Customized Services System Building for The Small-packed Rice

Rice navigation industry

HUNG CHANG RICE MILLER



Production



Harvesting/
Post harvest



Rice Health
Management Service
Platform

巡田水App

Open Data

- Production and Marketing Resume System
- Integrated Information Platform for Crop Quality Production
- Bureau of Animal and Plant Health Inspection and Quarantine
- Water Resources Agency
- Central Weather Bureau

HUNG CHANG RICE MILLER



- Agricultural Guidelines
- Production Planning and Scheduling



Contract Farming



- Active Field Recording



Production

Harvesting/
Post harvest

Rice navigation industry

HUNG CHANG RICE MILLER

■ Agricultural Guidelines : Production Planning and Scheduling.



■ Active Field Recording : Implementing field records.



- Annual milling yield will increase by 1%.
- Revenue increased 1.5%.
- Sales volume will be increased by 10-20%.



■ Warehousing Information Service Platform : controlling high-quality rice, and stabilizing the quality of supply.



Harvesting/
Post harvest

Rice navigation industry

ALMIN ENTERPRISE CO., LTD



Real-time Return of Information

- ◆ Storage temperature and humidity monitoring
- ◆ Machine Operation Monitoring
- ◆ Input and Output Flow Monitoring
- ◆ Suggestions on System Management
- ◆ System Abnormal Startup Monitoring

Intelligent Barn Monitoring and Management



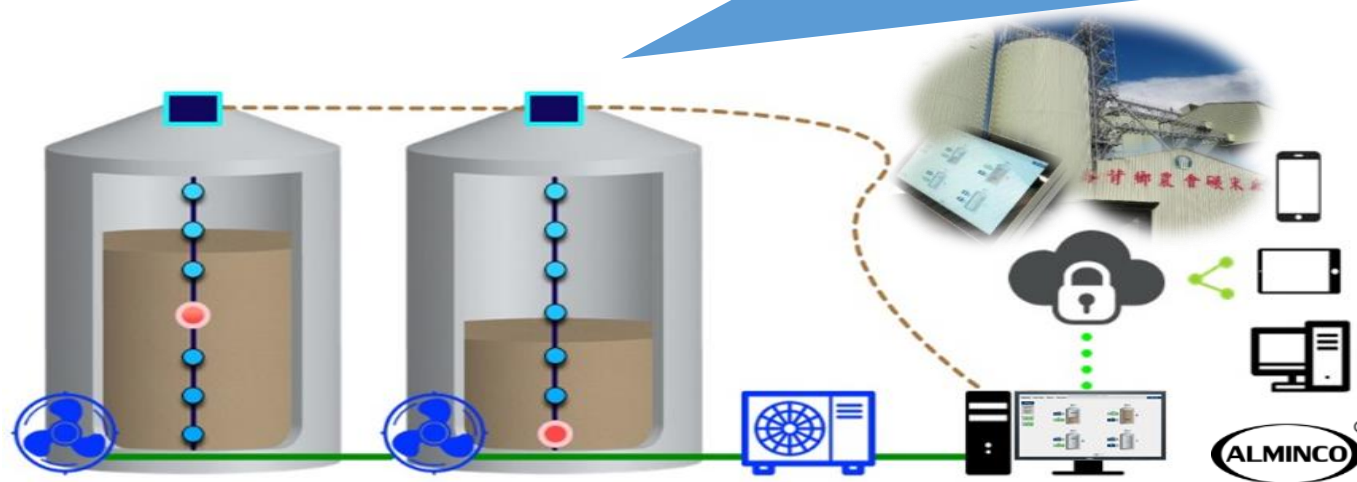
Harvesting/
Post harvest

Rice navigation industry

ALMIN ENTERPRISE CO., LTD

- ◆ Total solution of intelligent silo monitoring and management system.
- ◆ Automation equipment can avoid personnel negligence, resulting in grain damage or quality degradation.
- ◆ The leading position in China and SEA, and in 2018, the platform has been deployed in export markets such as SEA.
- ◆ Extended to the feed and other industries in various fields.

- Storage
- Temperature
- Water content



Remote Monitoring Management

Pic. Grains Monitoring and Management Schematic Map

Rice navigation industry

RICE HOUSE UNIVERSAL CO., LTD.



Production



Harvesting/
Post harvest



Channel

- Food Traceability



Customers

RICE HOUSE UNIVERSAL



Contract Farming

- Intelligent Expert Management System for Rice
- Agricultural Guidelines



*Online Customized Services
System Building for The Small-
packed Rice*



Wisdom Barn

- Intelligent Insect-proof Granary Management System
- Application of ICT and Automation Device for Intelligent Low Temperature Storage Quality Management of Rice

Rice navigation industry

RICE HOUSE UNIVERSAL CO., LTD.



Production



Harvesting/
Post harvest



Channel

Online Customized Services System Building for The Small-packed Rice

- ◆ Create new products and services.
- ◆ Reduce inventory pressure, maintain freshness and reduce wastage in sales routes.
- ◆ Since 2012, it has created 19,000 USD of sales revenue.

請選擇米種用途及包裝視覺 >> 公開



Step1. Gift Purpose



Step2. Packaging Vision



Step3. Upload
Pictures and Copies

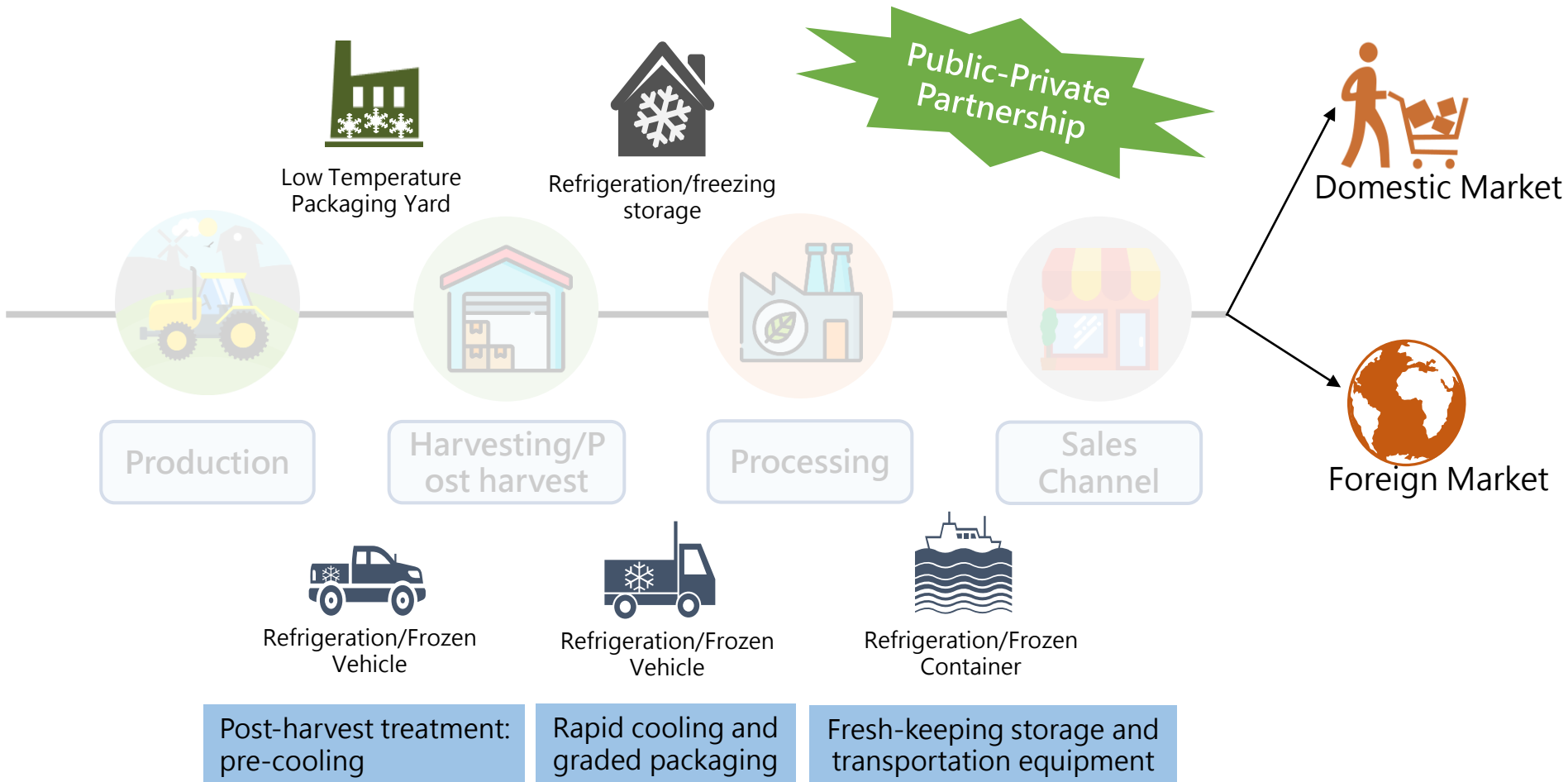


Step 4. Customized and
Proofreading

Pic. Construction of Digital Custom Marketing System for Small Packing Meters Schematic Map

Conclusion

In the Furture: Perfecting Cold Chain Logistics System



Thanks for Attention