# ICT-applied farming method for producing muskmelon by an IT company
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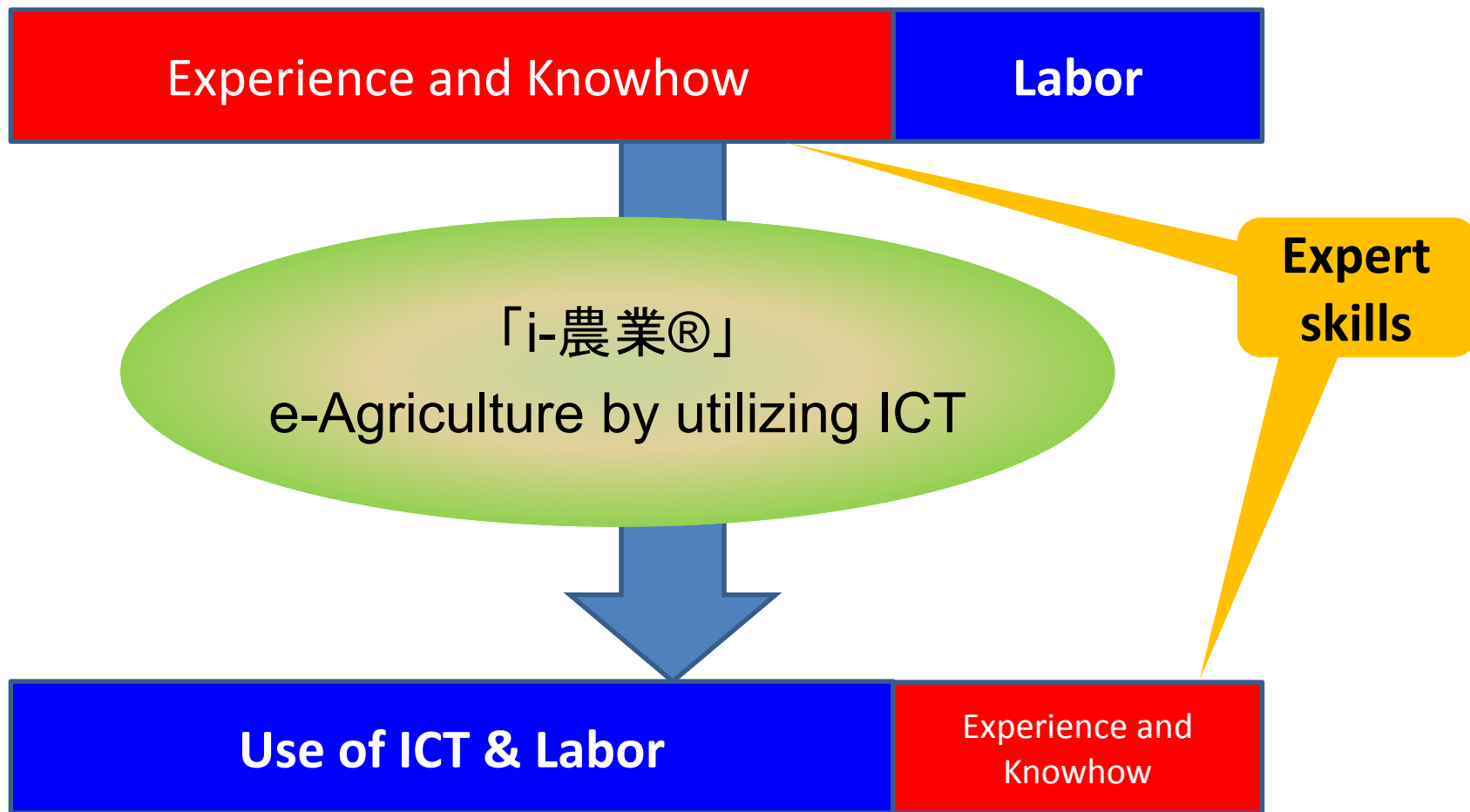
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➤ In the era of Information and Communications Technologies, the company sought the new area to use efficiently its resources.

➤ Focused on the recent remarkable progress of IoT sensor technologies and its application.

➤ Importance of agriculture for the future taking into consideration the No. 2 goal of SDGs to contribute to the solution of future food problems

➤ Founded : June 1977

➤ President and CEO : Kenji Nakamura

➤ Headquarters :Takatsuki city, Oosaka prefecture

➤ Farmland (rented): Fukuroi city, Shizuoka prefecture

➤ Business:   System Integration and provision of solutions, development of business related software for clients (sales and accounting management software, etc.)

➤ Capital: U$ 3.5 million

➤ Employee: 168

Quality First

Environmental Considerations

Pursuit of Technical Excellence

7 ： 3

| Experience and Knowhow | Labor |
| --- | --- |

「i-農業®」
e-Agriculture by utilizing ICT

**Expert skills**

| Use of ICT & Labor | Experience and Knowhow |
| --- | --- |

➤ Feasibility of greenhouse cultivation and its ICT applicability

➤ Greenhouse cultivation is easy to apply ICT sensor technologies and to control condition in the house

➤ Selection of agricultural items suitable for greenhouse cultivation

➤ Easy to apply expert knowledge of farmers

➤ Productivity will be improved by the ICT technologies

➤ High valued muskmelon are considered profitable for the greenhouse cultivation

## Location of Shizuoka Pref. and Fukuroi city

## Muskmelon

Population of 87000 as of 2015 in the area of 109 Km²
240 Km west of Tokyo facing Pacific Ocean
Land use as of 2011 consisted of 17.2% residential,
36.2% agricultural and 19.5% mountainous woodlands.

➢ **2008:** The company started the feasibility study

➢ **2009:** Contracted with a melon farmer in Fukuroi city.

➢ May **2011:** 3 system engineers of the company apprenticed in the contracted melon farm.

➢ Dec. **2011：** the company participated as a melon producer, in GS1 Japan in the advanced farming model project aimed to promote the use of RFID for tags attached to melons and EPCIS

➢ June **2012:** the company rented farmland 8800 m² and built greenhouse for growing hydroponic tomatoes and later muskmelons
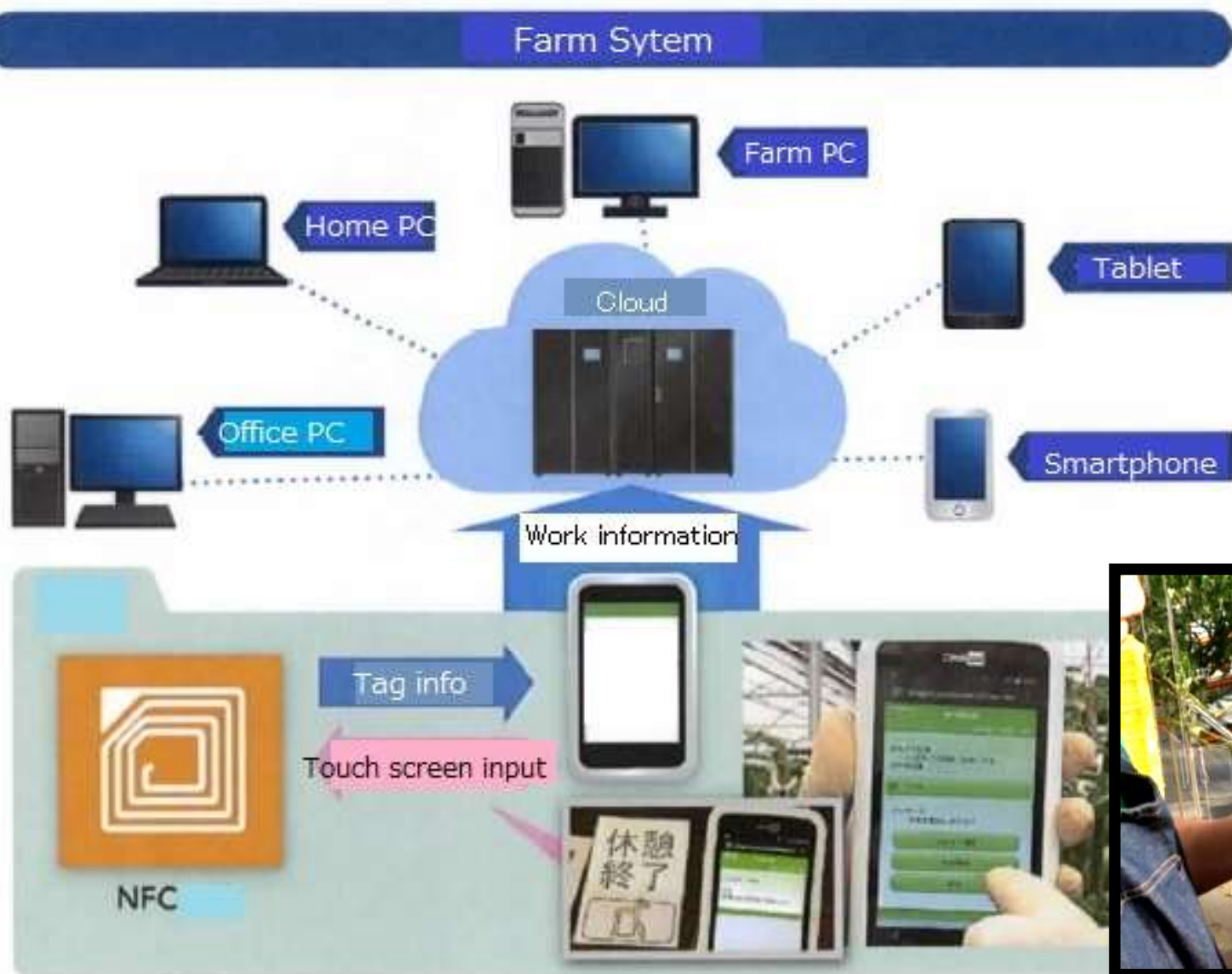
【Note】
GS1: global standard one
RFID: Radio Frequency Identification,
EPCIS: Electronic Product Code Information Services

➢ Hydroponic growing method in greenhouse.

➢ Concentrated nutrient solution irrigation system controlled by ICT(micro-computers).

➢ Relief of farmers from the laborious task of vapor soil sterilization to avoid repeated cultivation damage.

➢ Automated growing system deploying ICT.

➢ Farmers participating in the project may share knowhow, experiences, digitized data from the cloud computer.
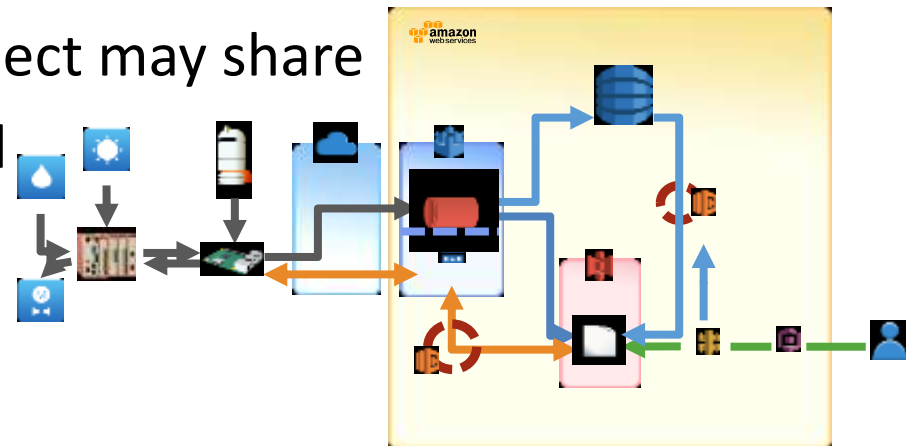
➢ Expert knowhow and experiences integrated in the system will be passed down to the new entrants and facilitate their start-up of melon farming.

➢ Reduction of labor for farmers

➢ Continuous growing without agricultural off-season

➢ Increased amount of products with guaranteed quality

sequencer

SoftwarePLC

Cloud

control

measure

fan

Window control

solenoid valve

モニター

| 積算日射 | 積算流量 |
|---|---|
| 25057 kJ/m2 | 6553.8 L |

43.53 L

74回

Pump / flow meter

Solar sensor

Rain sensor

Temperature sensor

monitor

## Synergy effect with plant factory of artificial light type

### Collaborating with Osaka Prefecture University



Plant Factory R&D Center

## Synergy effect with plant factory of artificial light type

Capital tie-up with Osaka Prefecture University plant
factory management company



Plant Factory R&D Center

➢ Automated farming system and associated IoT sensors and software development are mostly procured from the regional suppliers.

➢ New entrants will be expected for the ICTized farming for other agricultural products

➢ Fallow fields and abandoned farmland will be utilized by the challenging entrepreneurs for automated greenhouse farming.



soil sterilization

preparing land

Cloud

sensors
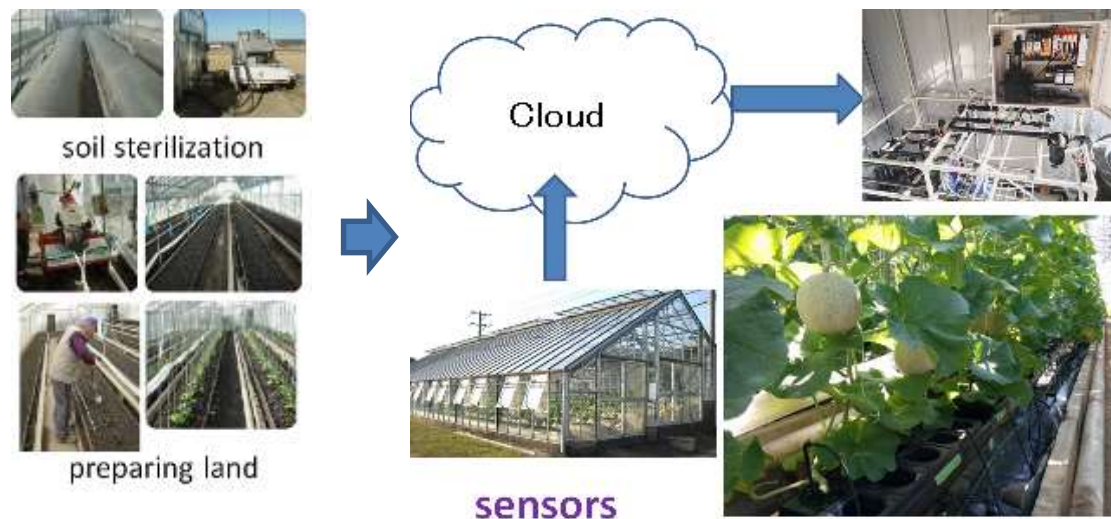
➢ Accumulated data in the cloud storage will be analyzed by AI

➢ Integrated ICT melon farming business will be grown up to be new business of the company by adding emerging technologies.

➢ Socio economic effect to the regional agricultural industries is expected

➢ This case study will be good practice of e-agriculture applicable to the developing countries for the business start-up for other agricultural products.

# Thank you !!

**Kenji Nakamura**

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