



EFFECTIVE STRATEGIES IN COLD CHAIN LOGISTICS AND HOW ICT ENHANCE ITS VALUE CHAIN

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WHAT IS COLD CHAIN





WHAT ISSUES IN COLD CHAIN INDONESIA (1)



- **High cost of logistics operation : old technology, bad quality of sandwich panel, bad quality of temperature control**
- **Lack of logistical support : bad racking system, many mistakes in operation management, manpower skills**
- **Power supply : limited and still depend on electricity supply from PLN also generator-set**
- **Infrastructure issues : land transportation, airport, sea port and vessels**



WHAT ISSUES IN COLD CHAIN INDONESIA (2)



- **Lack of training and awareness : profession certification (operator, services, engineer), quality system & monitoring, safety food**
- **Lack of monitoring and control : performance monitoring of refrigeration machine, performance monitoring of product distribution, data logger for traceability monitoring**
- **Lack of technical consideration and equipment : how to choose logistics technical based on area and kind of product, and right equipment**

WHAT ISSUES IN RAW MATERIAL HANDLING (1)

FROZEN FISH

Temperature - 12 °C s/d -25 °C

COOL BOX

Insulated value k 0,02 – 0,03 w/m K
Thick minimum 3 cm

REFRIGERATED TRUCK

Temperature - 18 °C s/d -25 °C

ANTEROOM

Temperature 7 °C s/d 15 °C

COLD STORAGE FREEZER

Temperature - 18 °C s/d -25 °C

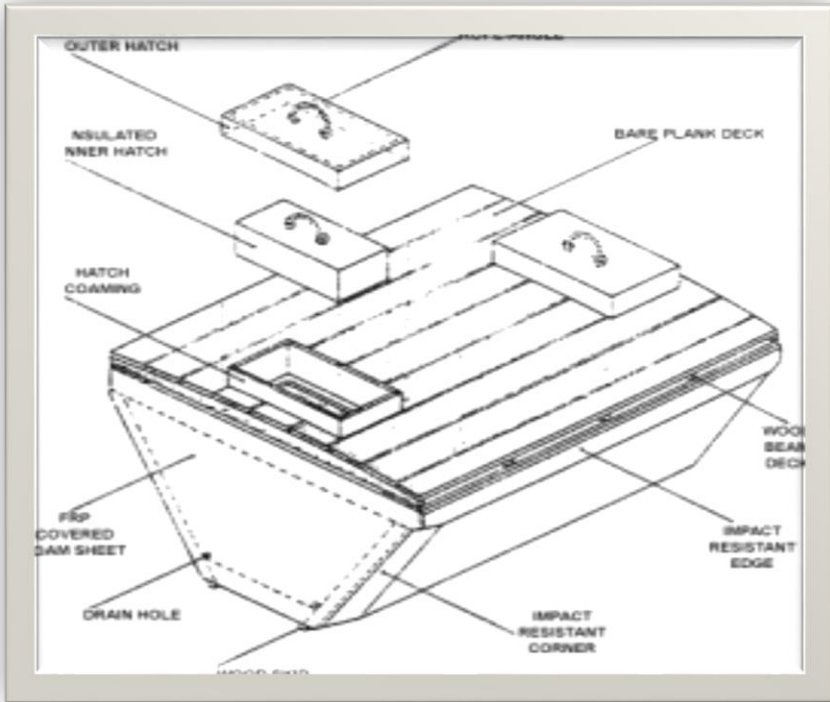
FISH AUCTION AREA

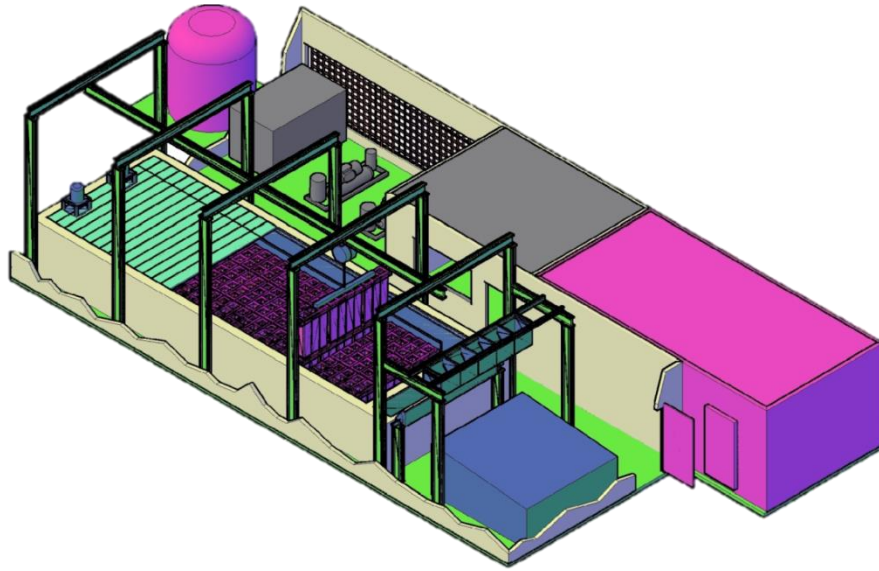
SHORT DISTANCE OF
TRANSPORTATION

LONG DISTANCE OF
TRANSPORTATION

SORTATION AREA

COLD STORAGE AREA





WHAT ISSUES IN RAW MATERIAL HANDLING (2a)



02:00 AM

04:00 AM



04:00 AM



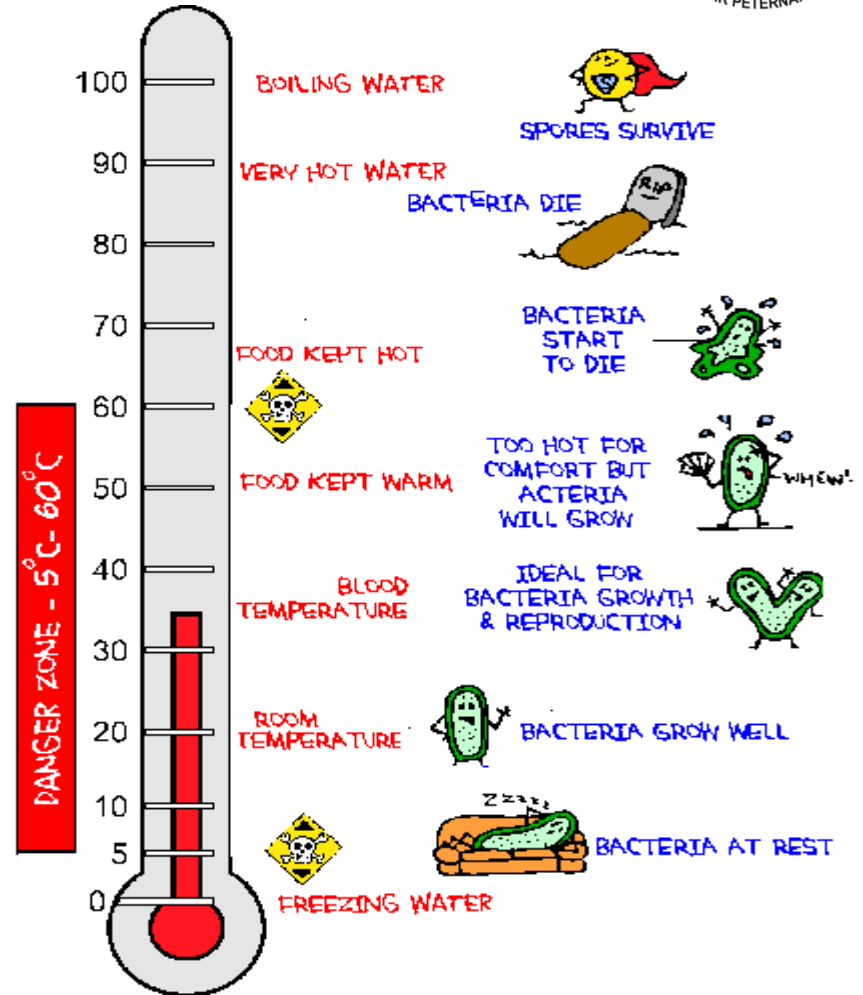
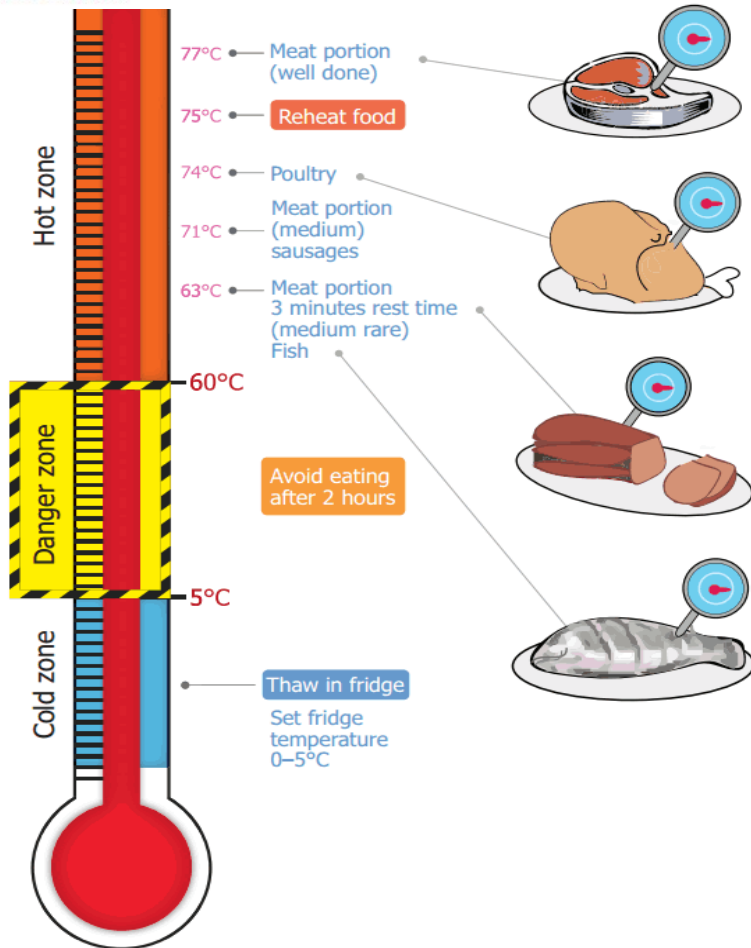
06:00 AM



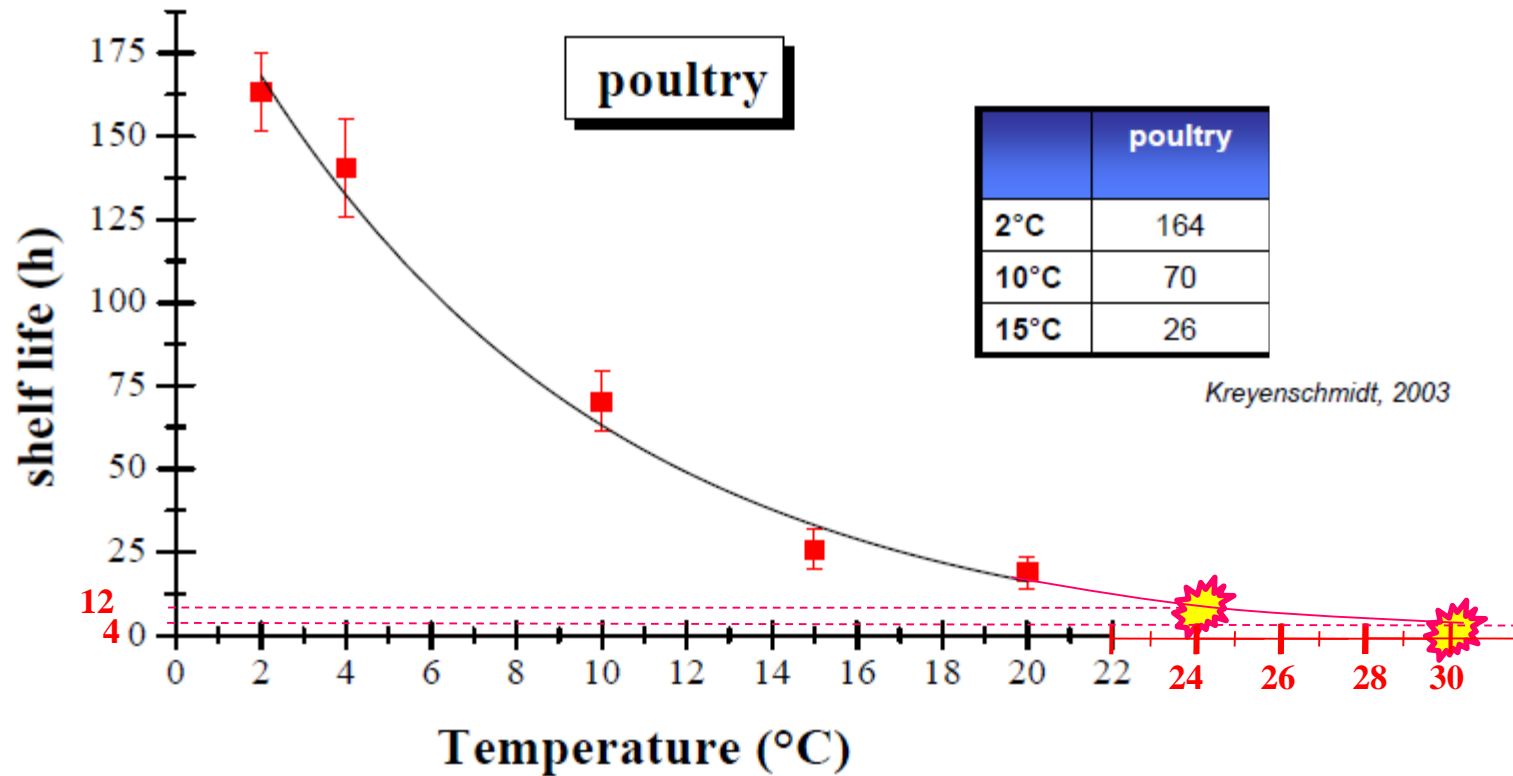
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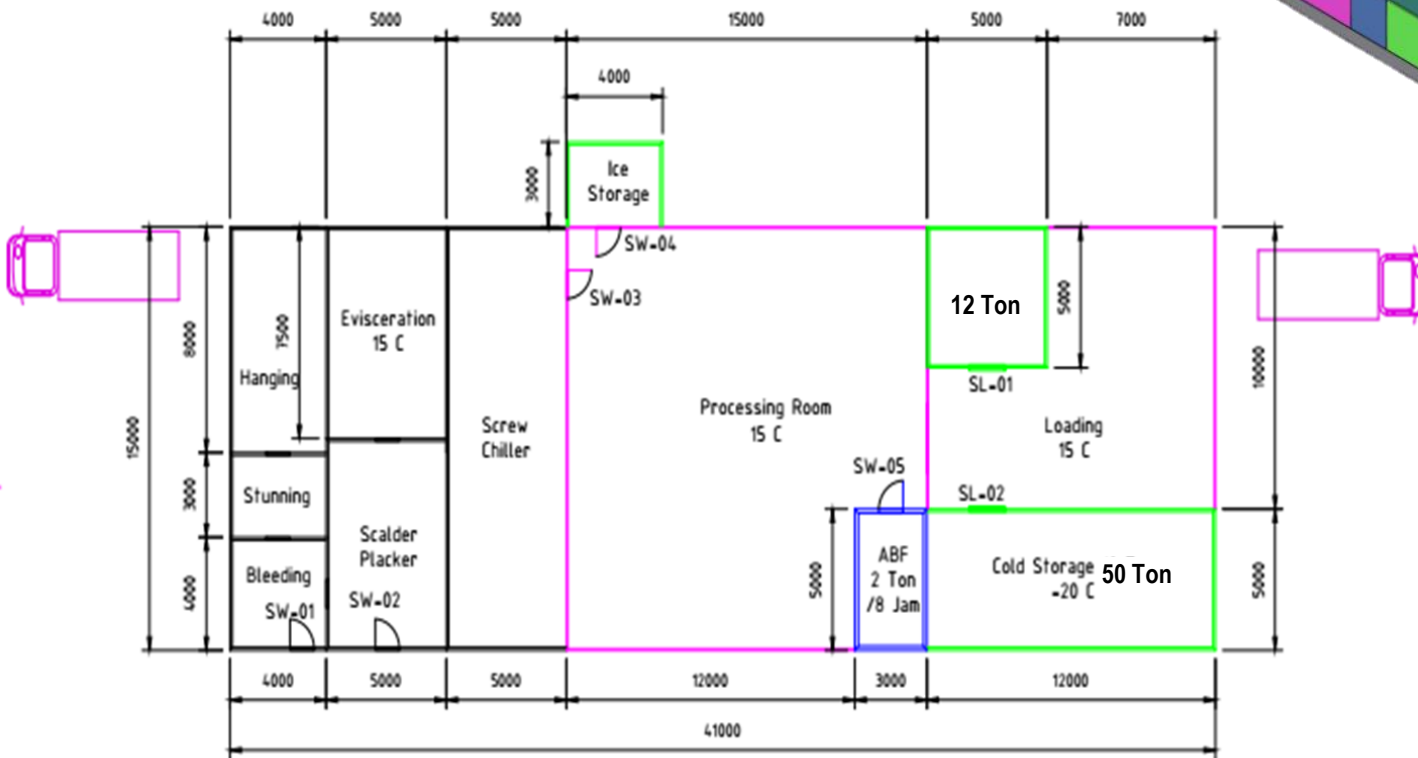
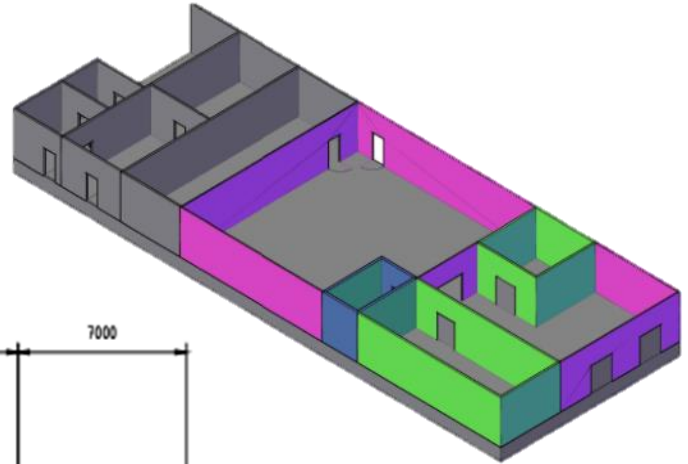
TRADITIONAL SLAUGHTERHOUSE SURVEY, 100 – 150 pc of chicken

WHAT ISSUES IN RAW MATERIAL HANDLING (2b)



WHAT ISSUES IN RAW MATERIAL HANDLING (2c)





GRAND DESIGN SLAUGHTERHOUSE



WHAT ISSUES IN RAW MATERIAL HANDLING (3)



Control atmosphere (CA) and Modified atmosphere (MA) storage

- **Extended shelf life**

- 1-Harvesting at optimum maturity, minimum mechanical injury, proper sanitation procedures, and optimal temperatures and RH are maintained.
- 2-Modification and control of O₂, Co₂ and ethylene surrounding the produce to level different from those in normal air.
- 3- This modification is commonly based on the effect of low O₂ or moderate Co₂ to restrain respiration, because both O₂ and Co₂ are biological-active molecules that play a decisive role in **primary** and **secondary** metabolic processes in plant organs.
- Their global influence on metabolism has led to their use for modification of plant behavior with the purpose of extending both **storage duration** and **shelf-life**.

O₂ → 5% (are reduced), CO₂ → 1% (are increased) for fruit preservation

COLD LOGISTICS

CONDENSING UNIT

**WATER COOLED
CONDENSING UNIT**



Cooling Tower

**AIR COOLED
CONDENSING UNIT**



Standard

Remoted Type





ICT

MONITORING MACHINE PERFORMANCE



- **Applicable in one system of monitoring**
- **Updating data logger**
- **Calibration (easy and updated)**
- **Connecting with central operator (block-chain)**
- **Standard Operation Procedure (principal – brand guidance)**
- **Easy to communicate**
- **Continues line**

Advantage Our Solution

Rack

- Compressor Switching
- Set Point Floating

Circuits

- Optimum Defrost
- Energy Savings Mode

Condenser

- Fan Cycling
- Heat Reclaim Split Management

Anti-Sweat

- Glass Door (s)
- Din Rail Heaters Control

Lighting

- Cabinet Lighting
- Store / Outdoor Lighting

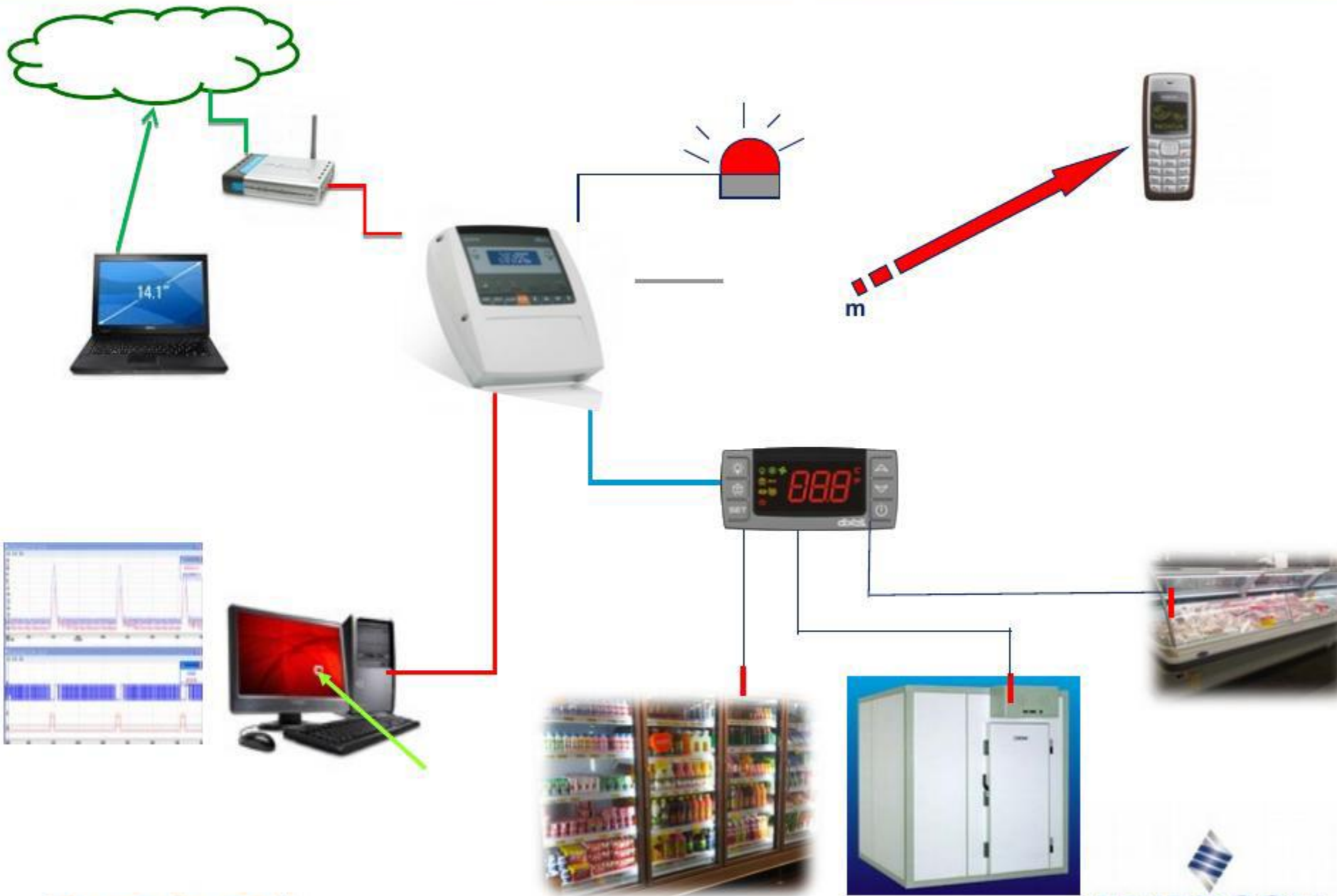
HVAC

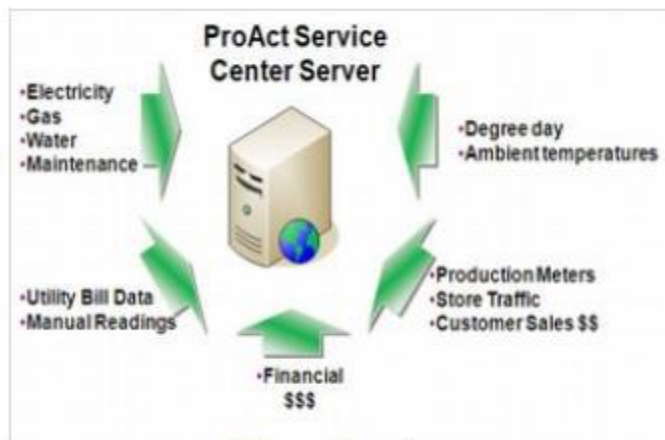
- Variable Speed Fans
- Night Set Backs



Overview





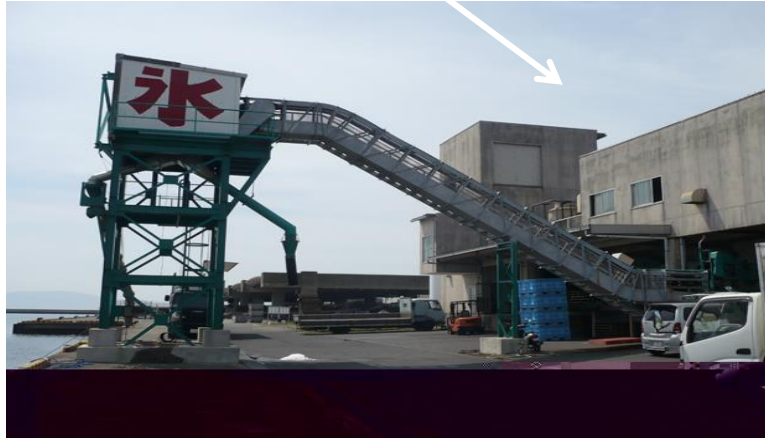


Metering Infrastructure

ProAct Server

Reports & Analysis

GOOD PRODUCT PERFORMANCE



会業対並鮮合総大和要需研産水市門長◎
photo: © Nov 2013



ICT

MONITORING PRODUCT PERFORMANCE



- **Applicable in one system of monitoring**
- **Updating data logger**
- **Calibration (easy and updated)**
- **Connecting with central operator (block-chain)**
- **Standard Operation Procedure (principal – brand guidance)**
- **Easy to communicate**
- **Record keeping**

TEMPERATURE PARAMETER

A key parameter that indicates the quality of the cold products, including food & beverages and pharmaceutical products



Frozen Products

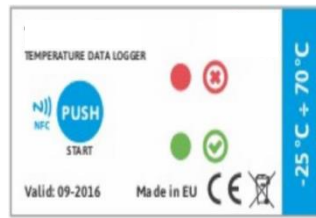
Below - 18, Microbe development is stopped under, enabling month-long duration

Fish and Meat Products

Between 0-4, Microbe Listeria doubles its population every 6 hours at 10 C compared to 6 days at 0 C

TEMPERATURE MONITORING

Overcoming current solutions' pain points, by innovating and delivering a high-accuracy temperature monitoring in your shipment package and cold-storages



blulog NFC Data

Loggers

Only credit card size, high precision and affordable



blulog Real Time Data

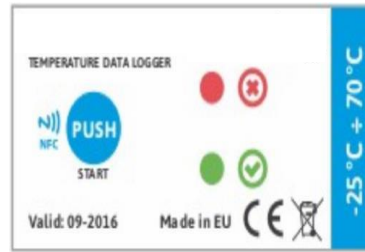
Loggers

Easy set-up, multiple coverage, access anywhere

BLULOG NFC DATA LOGGERS

Only credit card size, high precision and affordable

Written instructions at the back



Green

Shipment was kept in right temperature conditions

Red

Temperature problem during transport

Fully Calibrated

+/- 0.3 C precision and real-time calibrated

Geolocalization

Available at each scan and auto upload to cloud

Single Use / Reusable

Low cost and waterproof (IP67 certified)

Alert Dieder

Incase of temperatures excursions

Large Memory

Up to 48,000 measurement capacity + logistics data

Smartphone Monitoring

Ease of monitoring; can be access any time through a smartphone

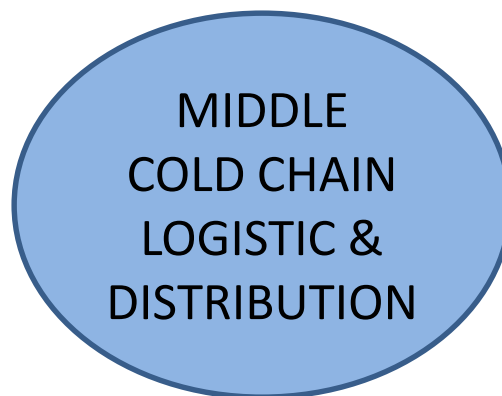


EFFECTIVE STRATEGY (1)

INFRASTRUCTURE



- **Remote Area (regarding to have a good collecting products)**
- **Connecting (Hub) Area (regarding to maximize product performance, reduce cost and easy to control)**
- **Science and Technologies (laboratory and implementation)**
- **Software system (block-chain, on line, easy to operate and continues)**
- **Man power skill**
- **Regulation**



REMOTE AREA

**COLD CHAIN HUB
with GOOD FACILITIES**

INTERNATIONAL PORT



EFFECTIVE STRATEGY (2)

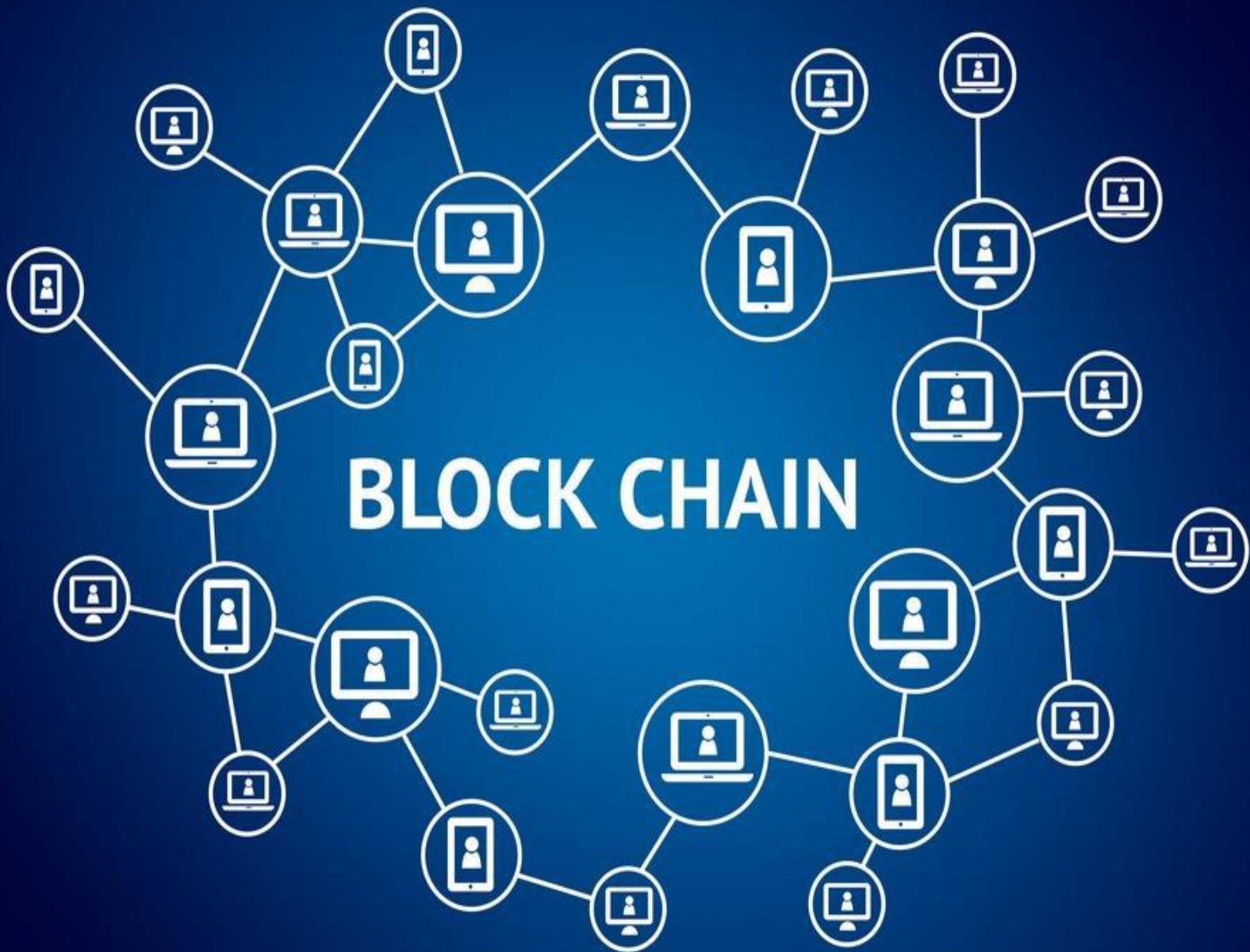
CENTRAL MONITORING



BLOCK CHAIN (future monitoring):

is a structure of data that can't be changed but only can be added. Every block-chain connect with other and if one of block-chain change, will effect to its continuing data. Every transaction will keep on Open Ledger that distribute to all chains, and copy to every computer that connecting with this chain.

BLOCK CHAIN





EFFECTIVE STRATEGY (3)

FUTURE COLD CHAIN CONNECTION



- **Raw material area**
- **Connection area**
- **Science & research**
- **Planning**
- **Concept**
- **Access**
- **Man power**
- **Software facility**
- **Regulation**

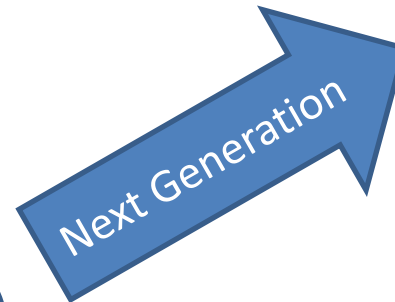


Large & SMEs
+ Universities

Sustainable Value
Creation Networks

Regional &
Global
Networks

TODAY
Transactional
Fragmented
Low Interoperability
Low Integration
Time Consuming
Traditional Operation
Wasteful



Year 2025
Collaborative
Seamless
Integrated
Rapid
Efficient



ASOSIASI RANTAI PENDINGIN INDONESIA

ABOUT US

STRUKTUR ORGANISASI :

- 1. Dewan Pembina (BOT), Dewan Pengurus (BOE), Chapters (Jakarta, Surabaya, Bali, Kalimantan Timur, Makasar, Manado) dan Anggota Kehormatan (stakeholders)**
- 2. Dewan Pengurus (BOE) : Ketua Umum, Sekretariat, Kompartemen Refrigeration, Kompartemen Cold Supply Chain, Kompartemen Food Industry**
- 3. Alamat Sekretariat : Rukan Grand Prima Bintara No. 1-2, Jl. Terusan I Gusti Ngurah Rai, Bintara, Bekasi Barat**



ASOSIASI RANTAI PENDINGIN INDONESIA

VISI & MISI

1. VISI

Merupakan organisasi industri utama yang mengajak bersama semua sektor industri yang memiliki usaha di bidang rantai pendingin; membentuk forum yang secara efektif dapat mempromosikan lebih agresif mengenai perkembangan infrastruktur dan program pelatihan yang penting bagi penggunaan gudang pendingin yang memadai secara maksimal, serta distribusi dan pemasaran hasil perishable products

2. MISI

Menjadi asosiasi yang pertama mempromosikan pengembangan jaringan pendingin di Indonesia untuk masyarakat Indonesia



ASOSIASI RANTAI PENDINGIN INDONESIA

EVENT AGENDA

- **EXPO**

1. Food, Hotel & Tourism, Bali, 2. Asia Warehousing Expo, Bangkok, 3. Asia Cold Chain Expo, Beijing, 4. CeMAT, IndoTranslog, IndoColdChain & IndoTruck (together with IndoBuildTech), 5. IndoLivestock & IndoFisheries, 6. Hotelex & FineFood Indonesia, 7. Seafood Show of Asia (together with SIAL Interfood).

- **WORKSHOP / TRAINING**

1. Internal Workshop 2. Government Institution Workshop, 3. Indo Cold Chain Project Workshop & Training



Forum Logistik Peternakan Indonesia (FLPI)

Presented at the International Conference
April 05, 2018, Gran Melia Kuningan-Jakarta

Forum Logistik Peternakan Indonesia (FLPI)



What is FLPI?

a forum to share ideas and build a collaboration with higher education institutions, government, business sectors and communities in supply chains, especially animal logistics.

Indonesian Animal Logistic Forum (FLPI) was established on October 7, 2015, in Bogor.

Aims

Bridging ABGC elements (Academician, Business, Government, Community) to sharing information, build collaboration and research in animal logistics.



Forum Logistik Peternakan Indonesia (FLPI)



Activities

- ▶ Workshops/Seminars; were held twice of year to discuss and give recommendation and solution about animal logisti issues.
- ▶ FGD (Focus Group Discussion); were held frequently to discuss topic about animal logistic issues and provide policy paper.
- ▶ Training to build multistakeholder capacity in animal logistics.
- ▶ Sharing Information. FLPI info can be accessed from our website (<http://www.flpi-alin.net>), facebook Logistik Peternakan and FLPI newsletters, as strategic media dedicates in bridging communication and providing information around animal logistics.
- ▶ FLPI members are able and encouraged to share articles and opinions in this website/newsletter by send to email (flpi2015@yahoo.com)

Forum Logistik Peternakan Indonesia (FLPI)



Members

- ▶ The government elements involved in this forum are Ministry of Agriculture Republic of Indonesia (RI), Ministry of Trade RI, Ministry of Transportation RI, and Coordinator Ministry of Economics RI.
- ▶ The business elements engaged, are, among others, PT. Charoen Pokphand Tbk., PT. Sierad Produce Indonesia Tbk., PT. Lembu Jantan Perkasa, PT. Berdikari (Persero), PT Charoen Phokpand, PT. Multiagro Lestari Pangan (Artha Graha Network), PT Widodo Makmur Perkasa, PD Dharma Jaya, etc.
- ▶ Higher education are IPB, ITB, ITS, Trisakti University, and Maastricth School of Management.
- ▶ The communities are AINI, GPMT, GOPAN, ARPI, GAPUSPINDO, APPHI, etc.

Some Of The Activities That Have Been Implemented



*The inaugural Workshop of FLPI,
October 27th, 2015*

Initiate the existence of 4 working groups:

- 1. Live animal transportation***
- 2. Feed logistics***
- 3. Traceability***
- 4. Human Resources***





WITH GOOD COLLABORATION WE CAN DEVELOP GOOD C/C INFRASTRUCTURE

