SCM Korea 2007

Key Note Speech
Logistics and SCM through KAIZEN
～Past and Future

November 6 ,2007
In Seoul

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Dr. and Emeritus Professor of Kanagawa University
Yutaka Karasawa

Ⅰ. Research Motivation

-Little Research for Logistics Kaizen Progresses on a Macro Basis

-Worth Studying for Logistics Kaizen Trends

-Personal Research Interests in This Fields

Ⅱ. Research Purpose

-To Make Clear Logistics Progress Factors Influencing Over Logistics Kaizen from Macro Viewpoints

-To Contribute to Studying Overall Progresses of Logistics Systems Mainly in Japan

-To Make Initial Start of Personal Research Interests in This Particular Field

KAIZEN

Ⅰ. Definition

-Improvement
-Innovation
-Rationalization
-Amelioration
-Revolution
-

Ⅱ. Transportation Operation

2.1.Int'l Operation
1.Land Bridge Operation
-Sea & Air Cargo Operation
-Cross Modal Operation
2.Hub Type Operation
2.2.Domestic Operation
1.Marguerite Type
2.Hub and Spoke Type
-Modal Shift & Linkage
2.3.Transportation System Operation
-Cross Dock/Demountable/etc

Ⅲ. Contents

-Logistics Organization Development

Ⅲ. Logistics System Development

3.1. Logistics Related System Progress
3.2. Logistics System Development
3.3. Material Flow Development
3.4. Input System Development
3.5. Development of System Span of Control

Ⅳ. Logistics Strategy & Management

4.1. Outsourcing Development
4.2.Int'l Logistics Organization Progress
4.3. Global Purchasing & Procurement MGT
4.4. Strategic Logistics Operation & Management

-K-line for Site Strategy

Definition

~Webster's Third New International Dictionary 1986

Improvement: To make better P.P.1138

1.The Act or Process of improving

a. as a profitable employment or use of one's time in reading

b. *Betterment*

-went to college not for degree but for professional

-amelioration patient's state of health

c. The Enhancement or augmentation of Value or Quality

-an increasing of profitableness, excellence ,or desirability

(an improvement of farm stock)

2.a:the state being improved enhanced value of excellence

b.: -a permanent addition to or betterment of real property that enhances its capital value and that involves the expenditure of labor and money and is designed to make property more useful valuable as distinguished from ordinary repairs

- a modification improving and making more valuable an existing discovery or invention

広辞苑 S39年版

定義 改善:善く改める事

改良:悪い所を改めて良くする事

Definition of Similar Terminology Related to Improvement

- **Rationalization:** The act, process , or result of rationalization-Webster 1968 P.1923 Right
  Reform(an industry) by eliminating waste in labour , time and materials
  -COD 1956 1004 Left
- **Renovation** : The act or process of renovating , making over. Revival-Webster. P.1923 Left
  Make new again , repair, restore to good condition or vigour-COD 1956 P.1033 Right
- **Innovation:** The act or instance of innovating ; introduction something new –Web. P.1166 C.
- **Reformation** :The act of reforming or state of being reformed-Web.P.1909 Center
  Reforming or being reformed. Radical change for the better in political, religious, or social affairs-COD P.1022 Right
- **Revolution** :The act of celestial body going around in orbit or elliptic course-WebsterP.1944Right
  Complete change, turning upside down, great reversal of condition, fundamental reconstruction-COD P.1049 Left
- **Improvement** :The act of process of improving-Webster P.1138 Left (Betterment)
  Get rid of by improvements, make goodness(the occasion, the opportunity)
  -COD P. 598 Right
- **Amelioration** :Act of ameliorating or state of being ameliorated –Web.P.67 Right
- **Betterment** :A making or becoming better-Webster P.209 Right. Improvement

A. Concluding Remarks

Improvement:

-To make Better

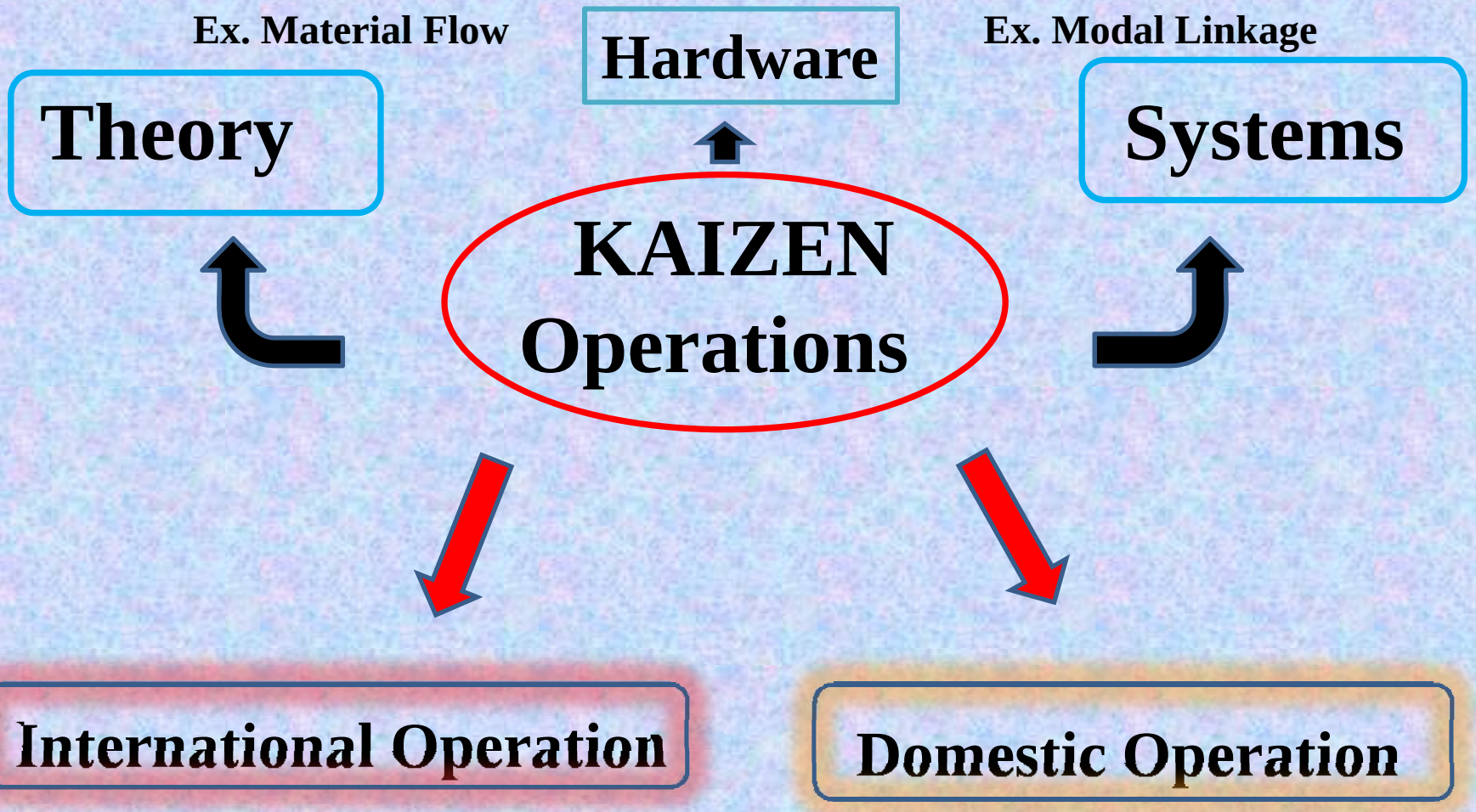
-The state being improved enhanced value of excellence

Synonym:

-Betterment

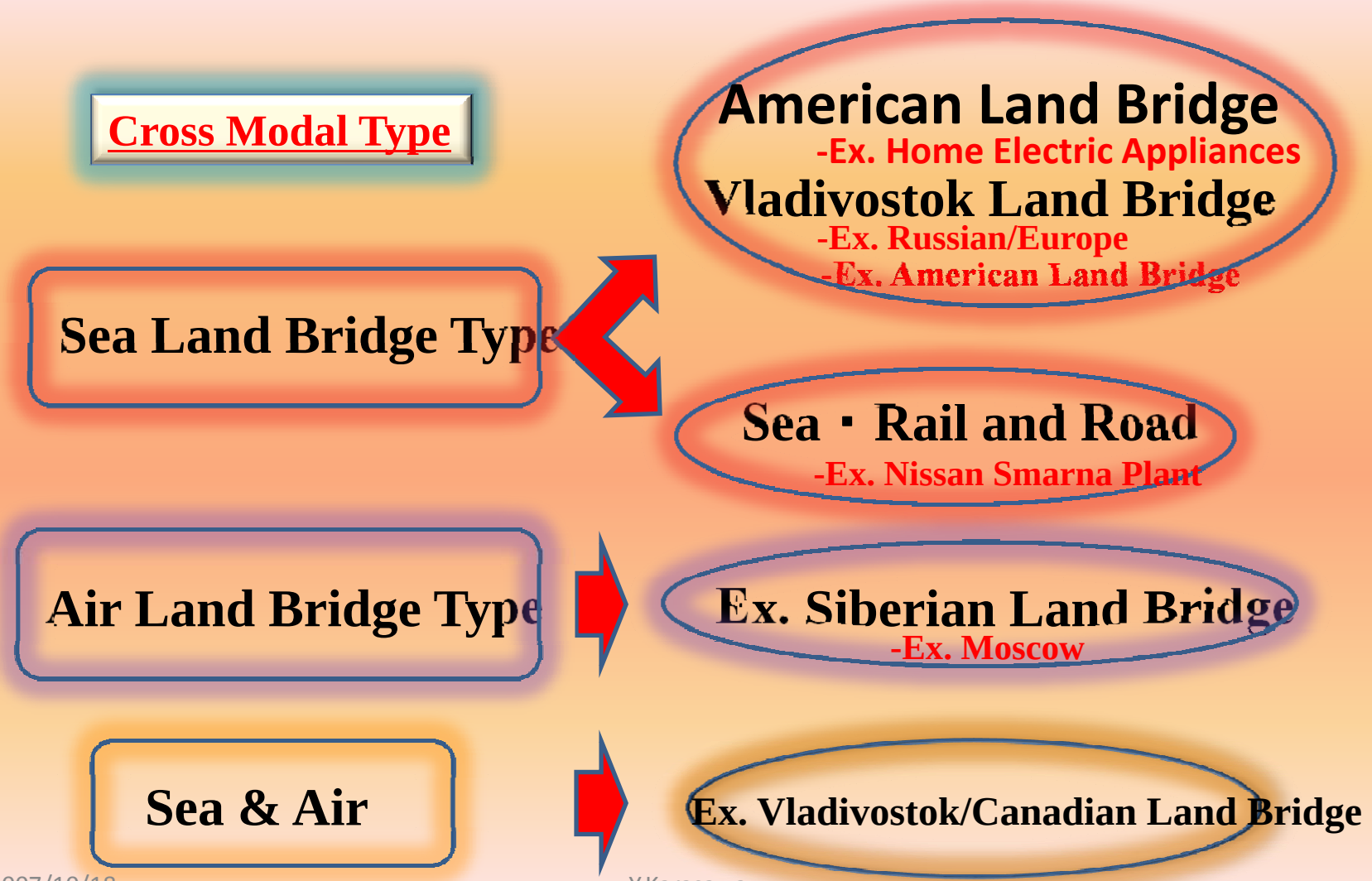
-Amelioration

Ⅱ.Transportation Operation -Theory ･System -Kaizen

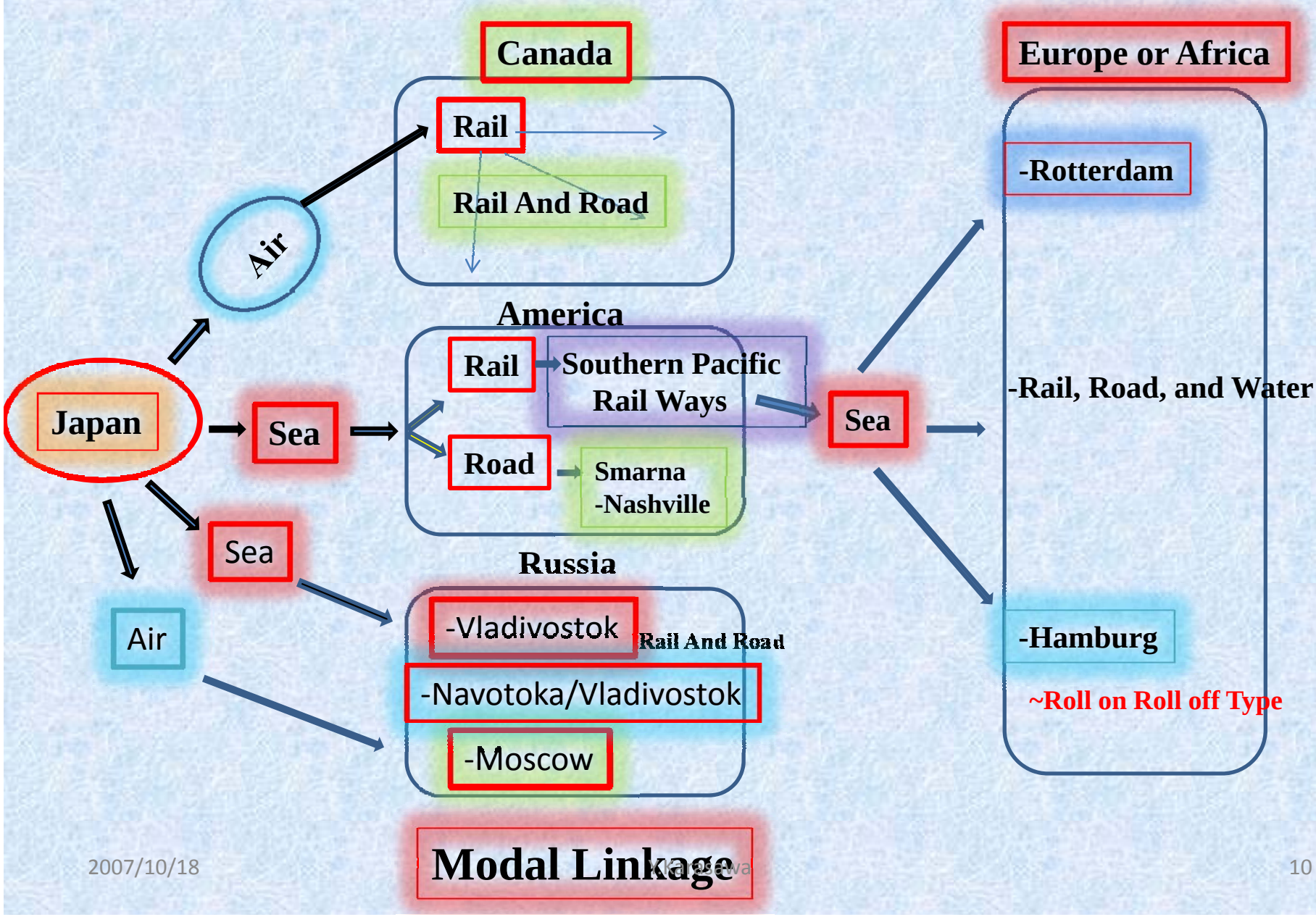


2.1. International Operation

2.1.1. Land Bridge(Modal Linkage) Operation



Land Bridge System Overview – Real Cases



Typical Name of Land Bridge Operation ~International Modal Linkage Transportation

-North America Mini Land Bridge	-East Coast/15-20days/Non Via Panama Canal
-North America Land Bridge	-1972 Open 40Feet Container/Speed 35-45Days/ 10% Down
-Siberian Land Bridge	-1967 Open Sea-Road-Domestic Air-Int'l Air / Speed 10days /Cost Air: 1/3Sea :3 times
-North America Micro Bridge	-Door to door Delivery/15-20days

2.1.2. Hub Type Operation

-Sea & Air Cargo

<Local Hub Type>
-Busan
-Singapore

<Free Port Type>
-Amsterdam
-Rotterdam
-Hamburg

Mega Hub Type

Hub Type~ Recent Movement

Milk Run Type ~ Regional Type

Stopover Type

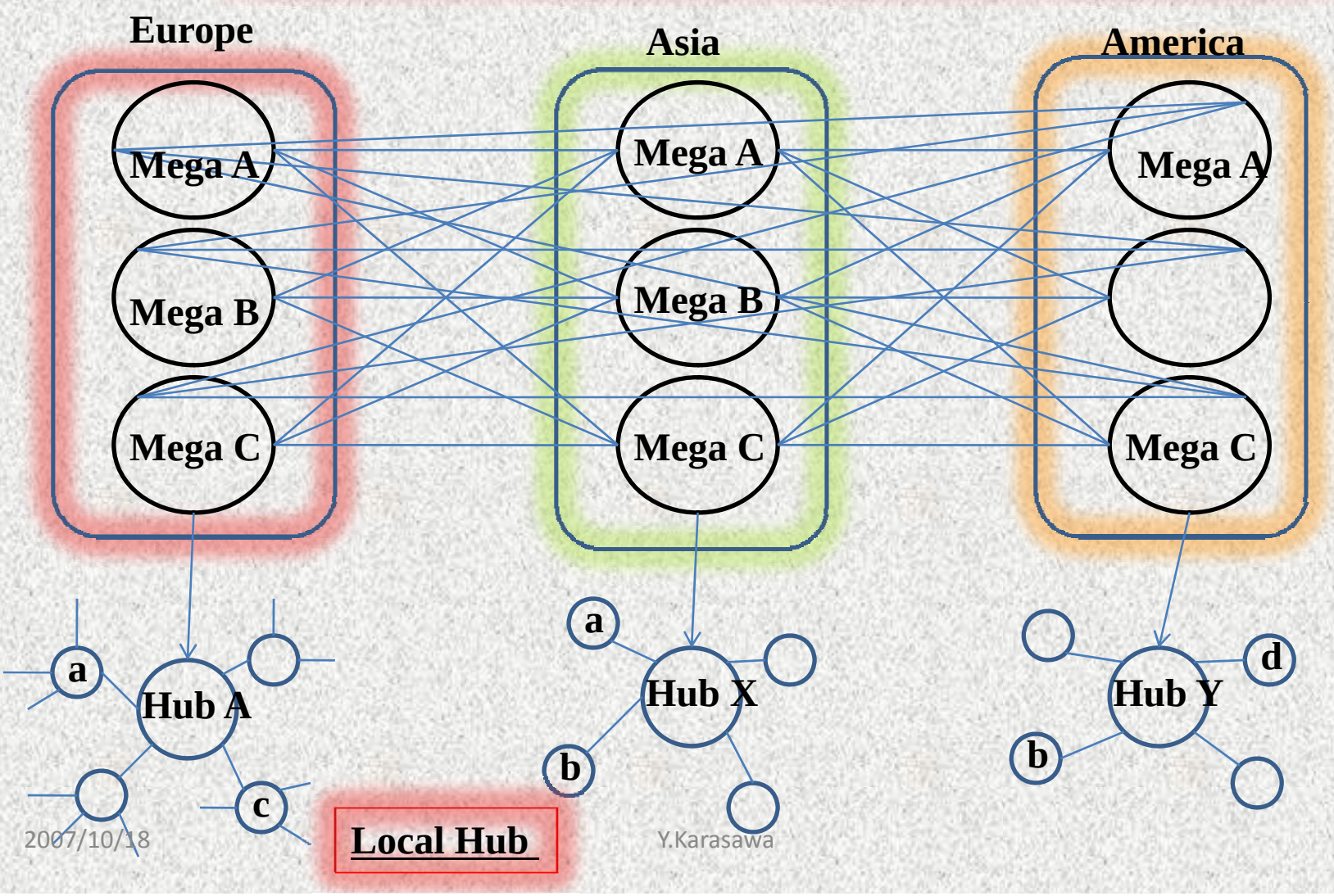
Point to Point Type～Line Type

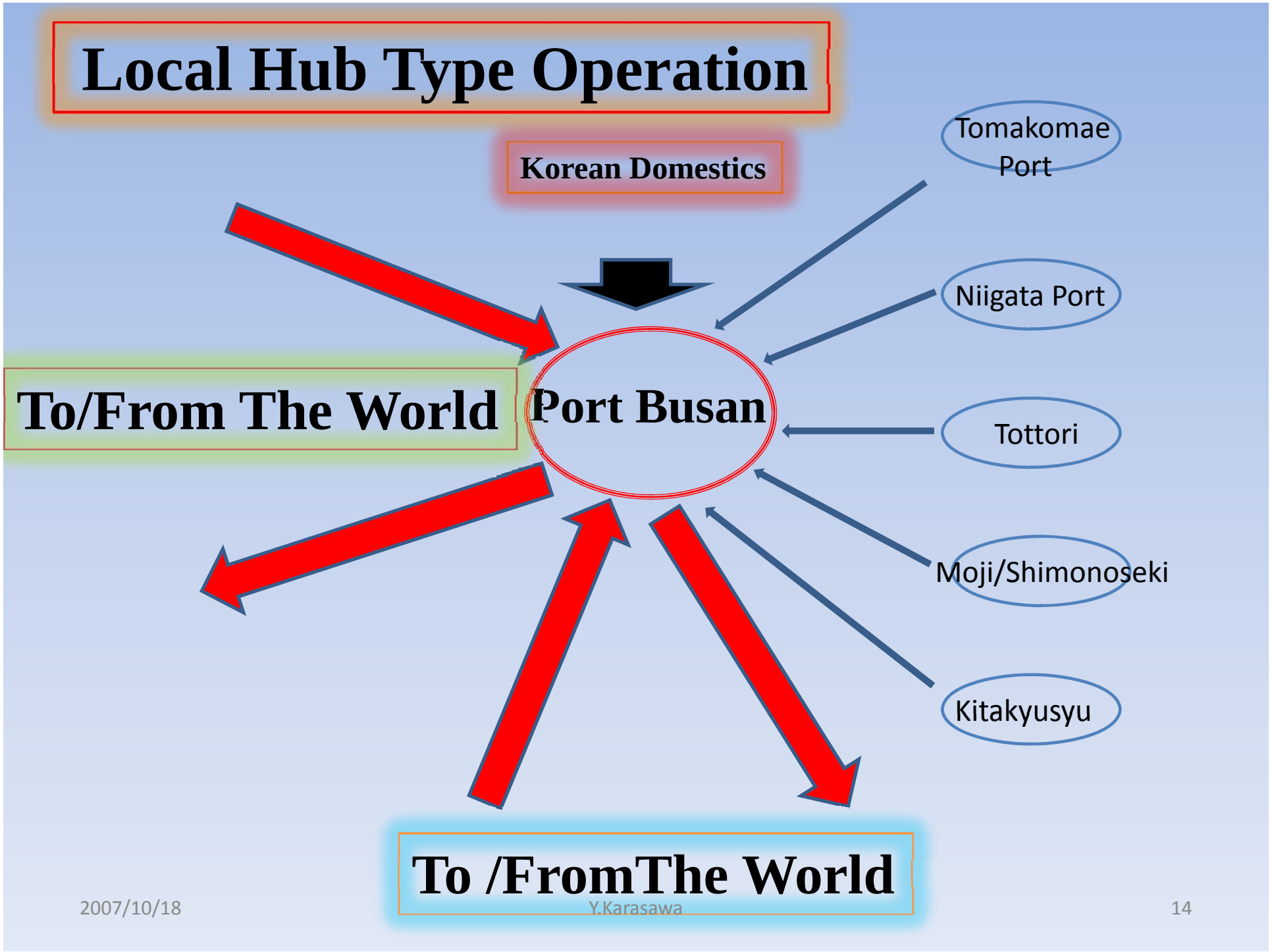
Future Direction

Past Operation

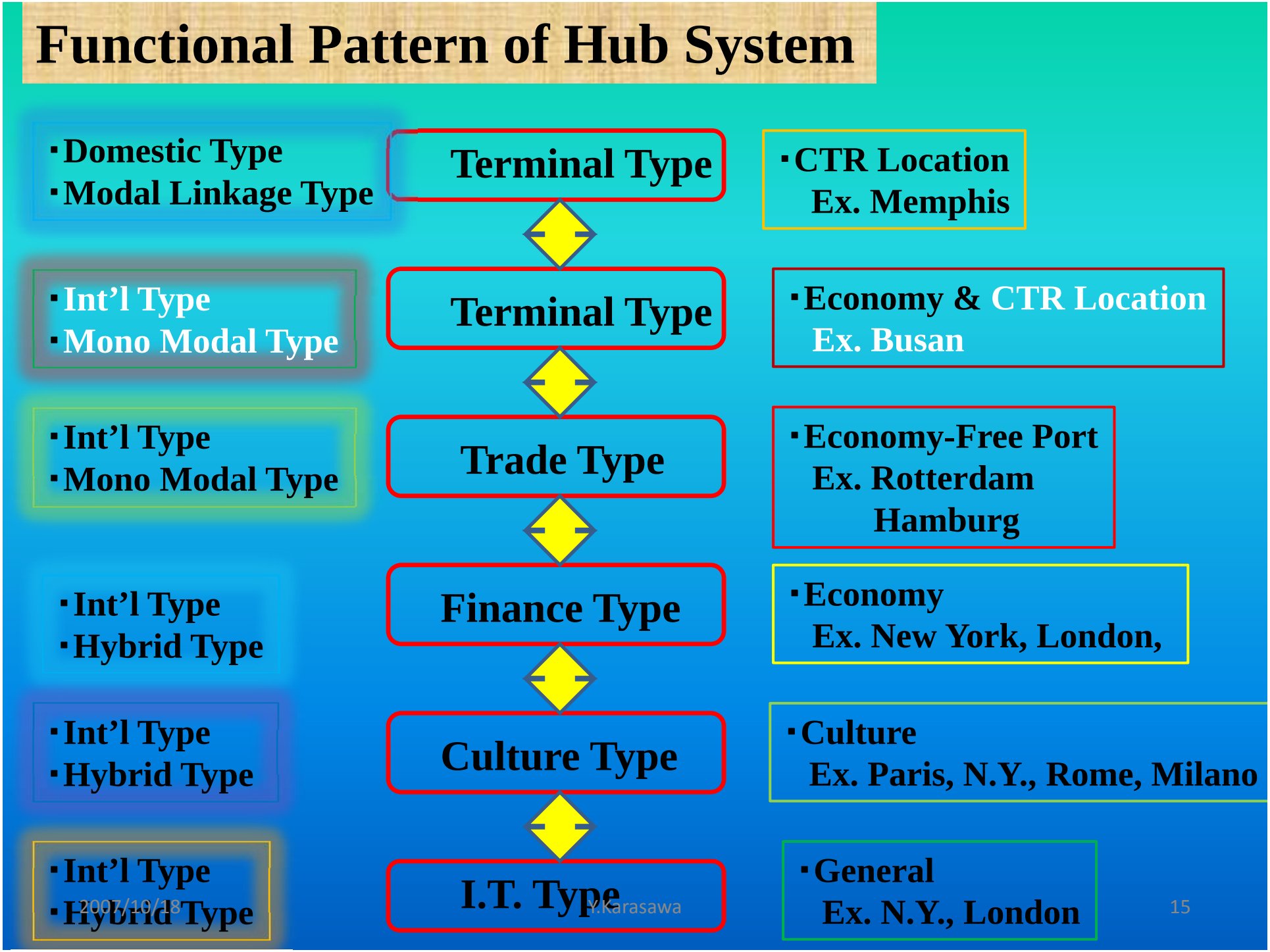
Mega Hub Type-Future Type

-Three Economical Polarization Basis Direction

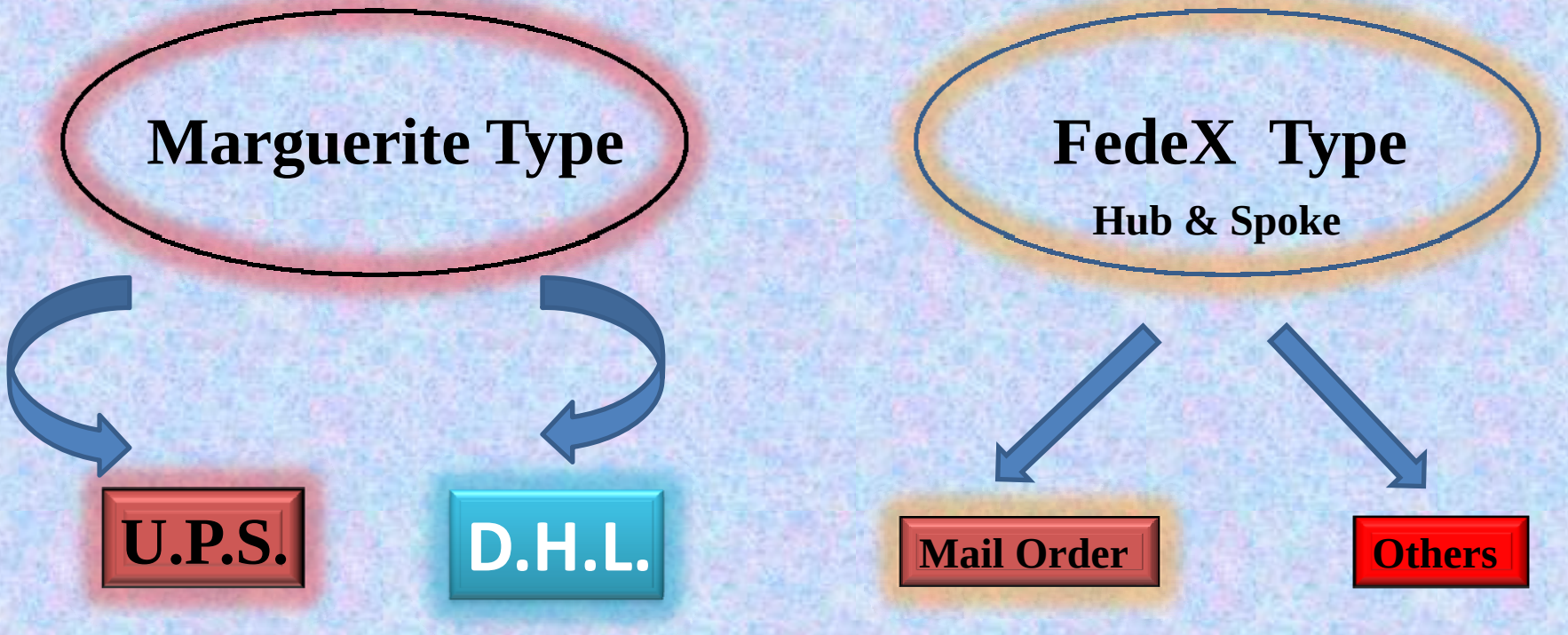



Local Hub Type Operation
Korean Domestics
Tomakomae Port
Niigata Port
To/From The World
Port Busan
Tottori
Moji/Shimonoseki
Kitakyusyu
To /FromThe World

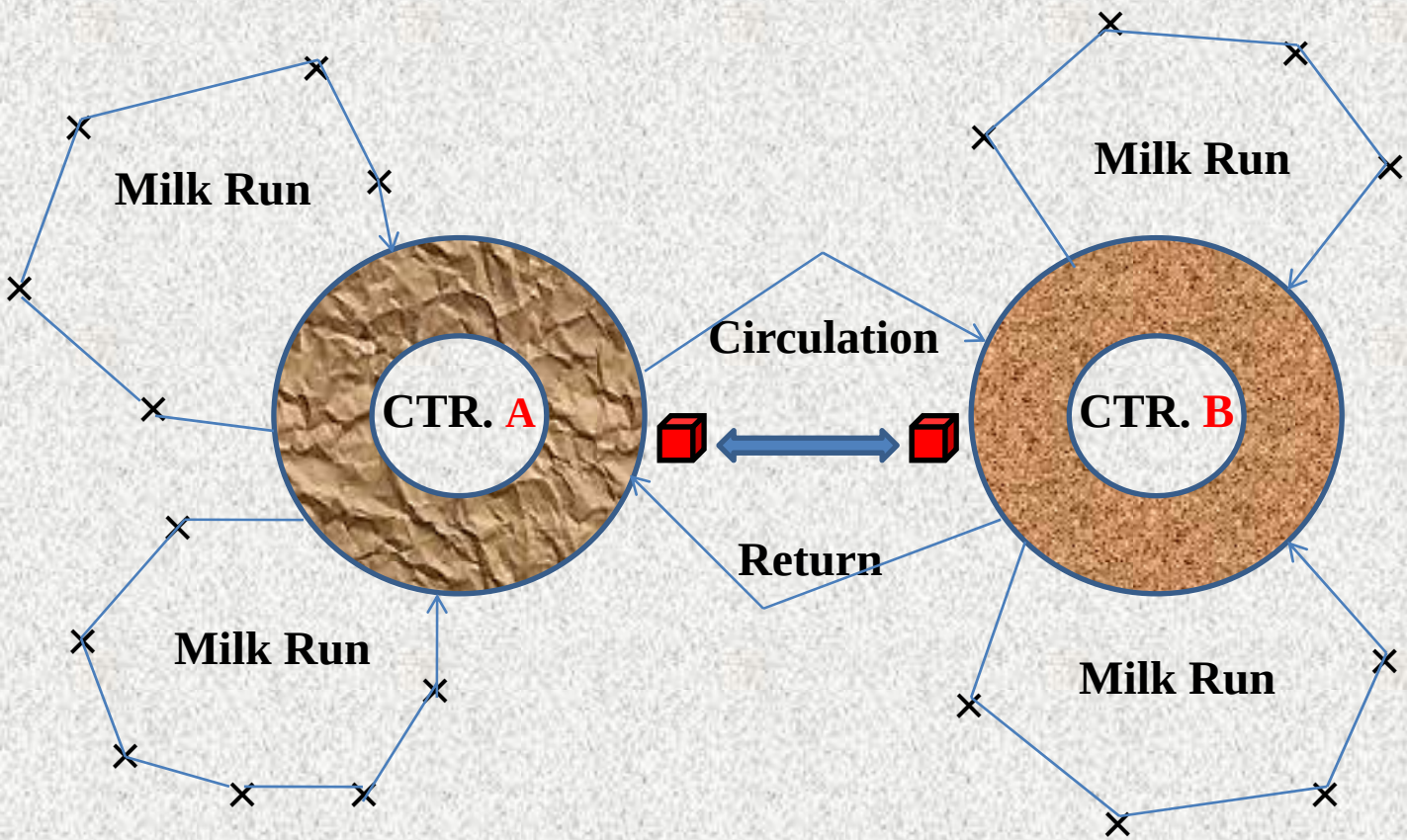
Functional Pattern of Hub System



2.2. Domestic Operation

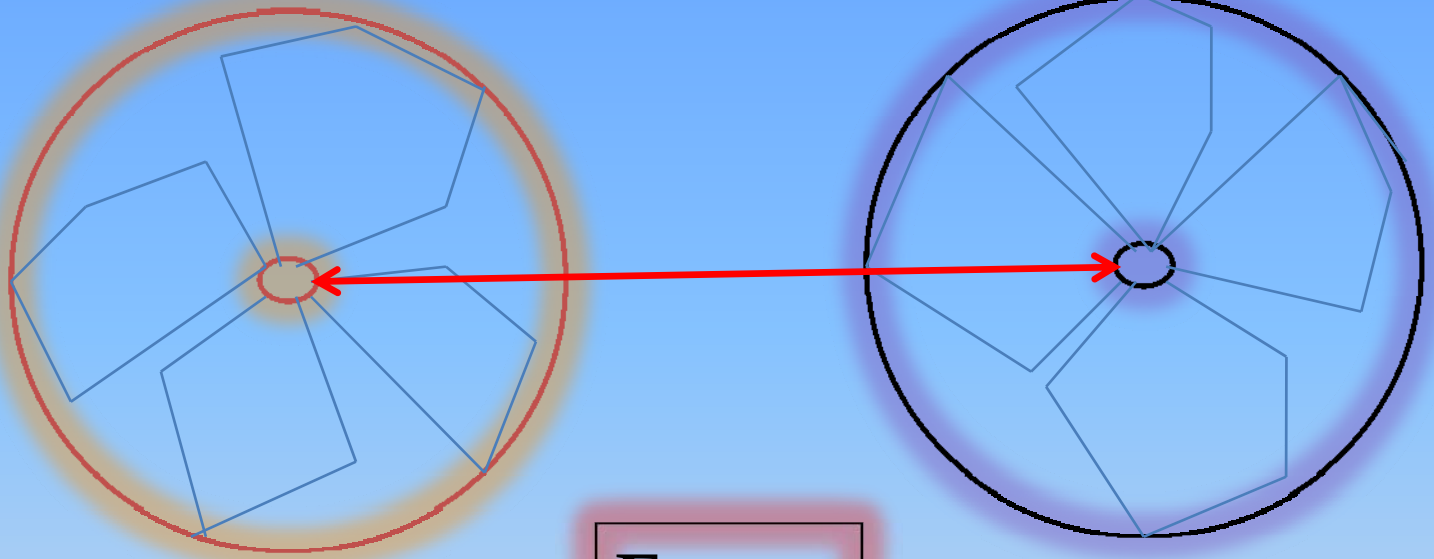


2.2.1. Marguerite Type

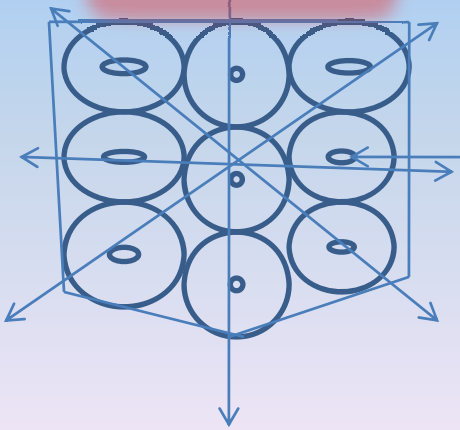


Consolidation : basic Concept is Same

Marguerite



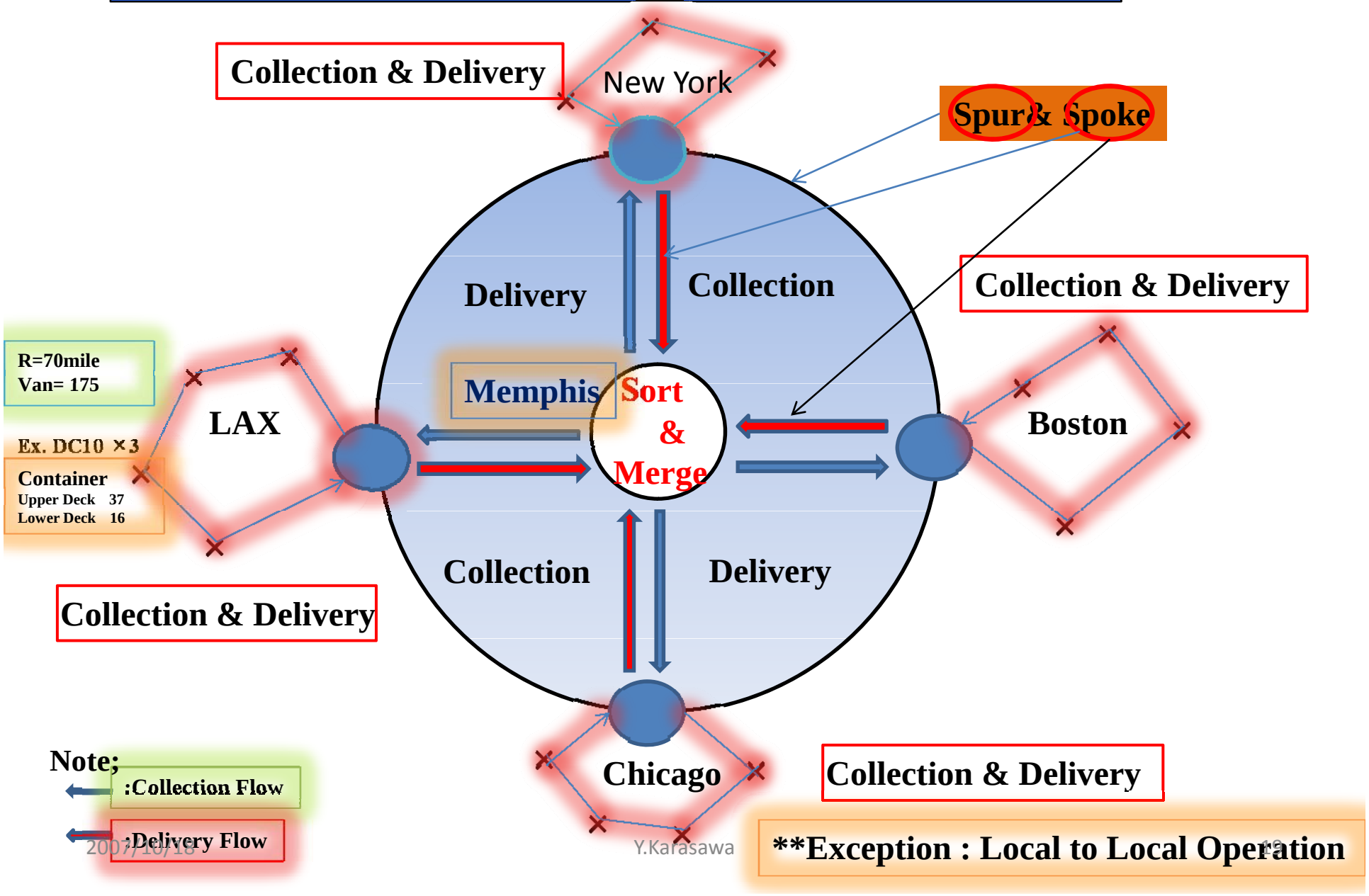
France



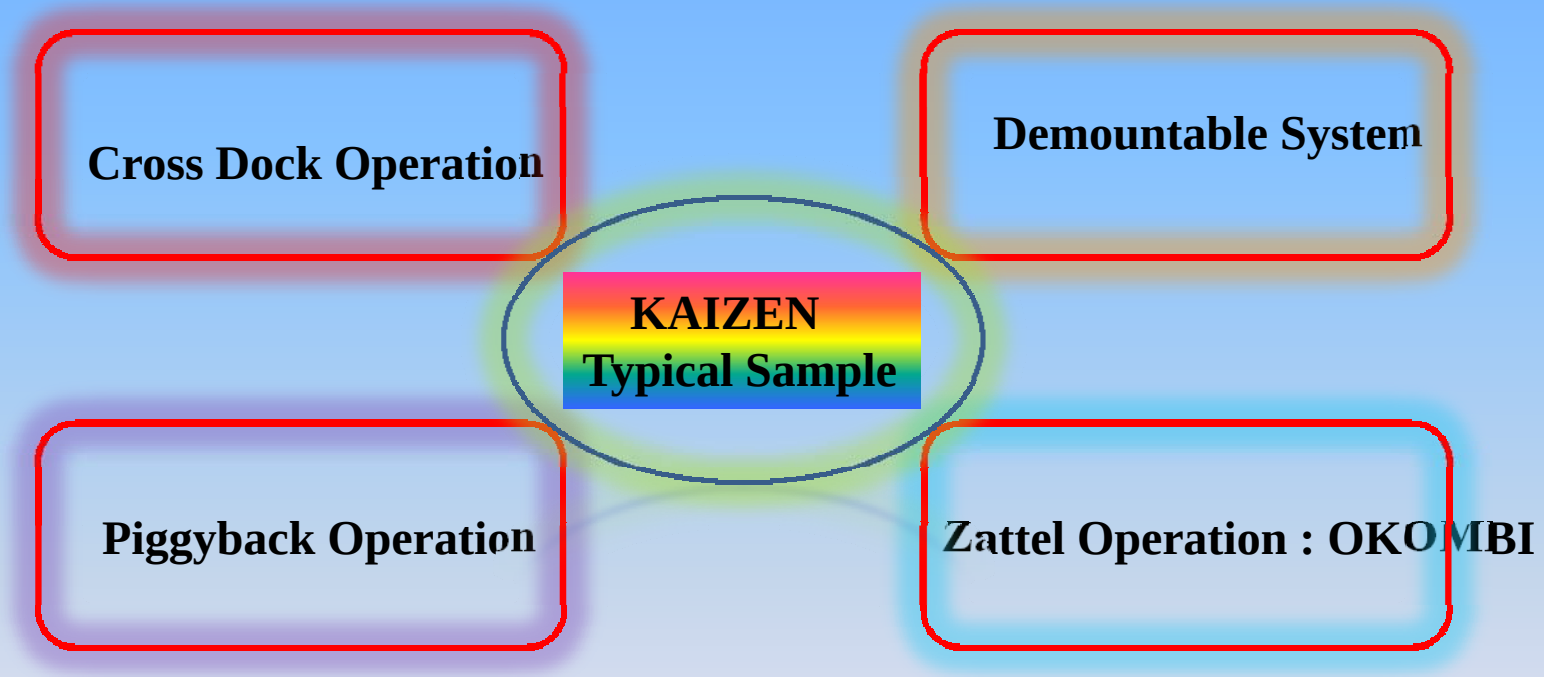
R=300km

Distance=900km(300 × 2) × 3

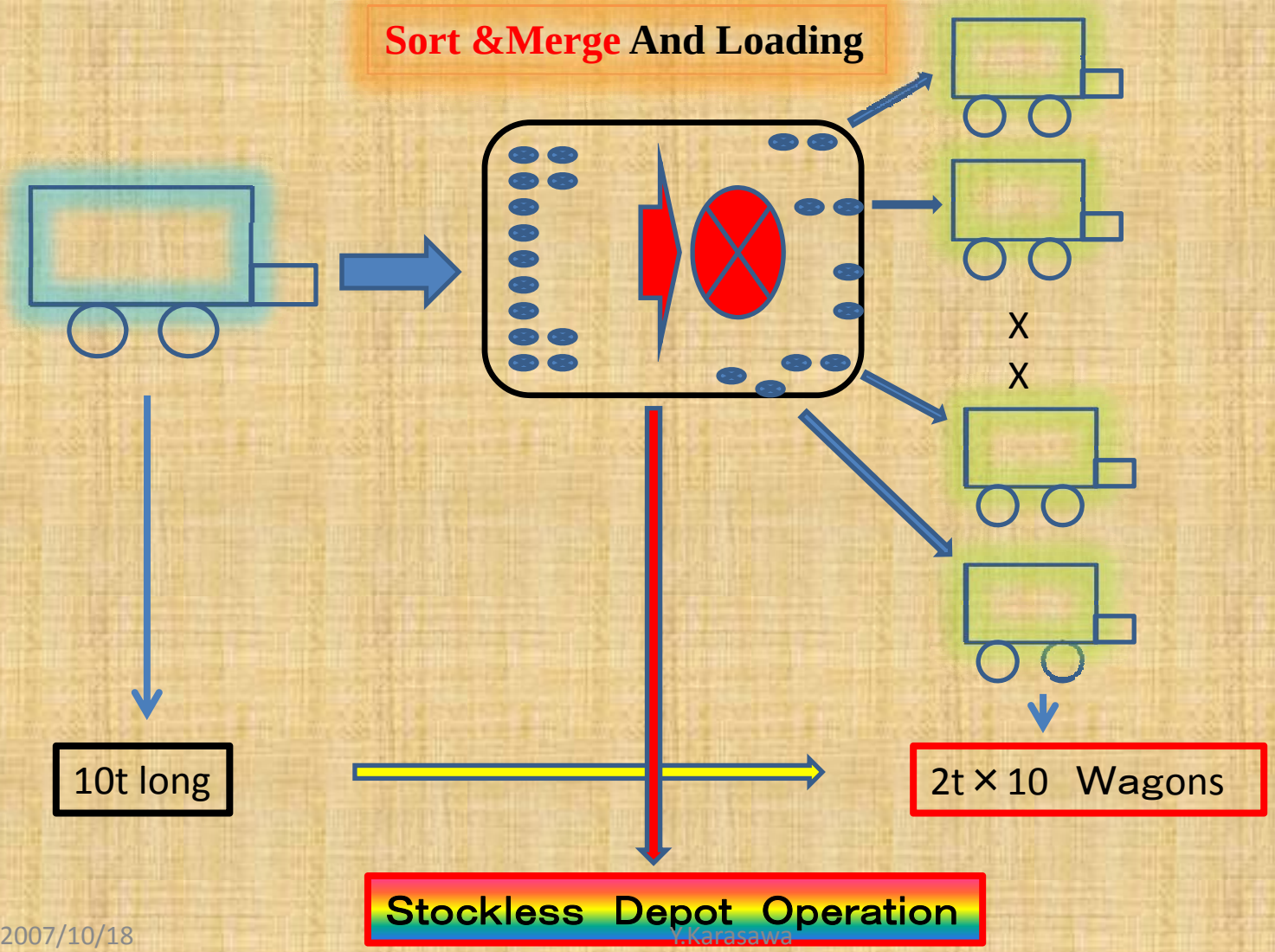
2.2.2. Hub & Spoke Type~ Air-Road Type



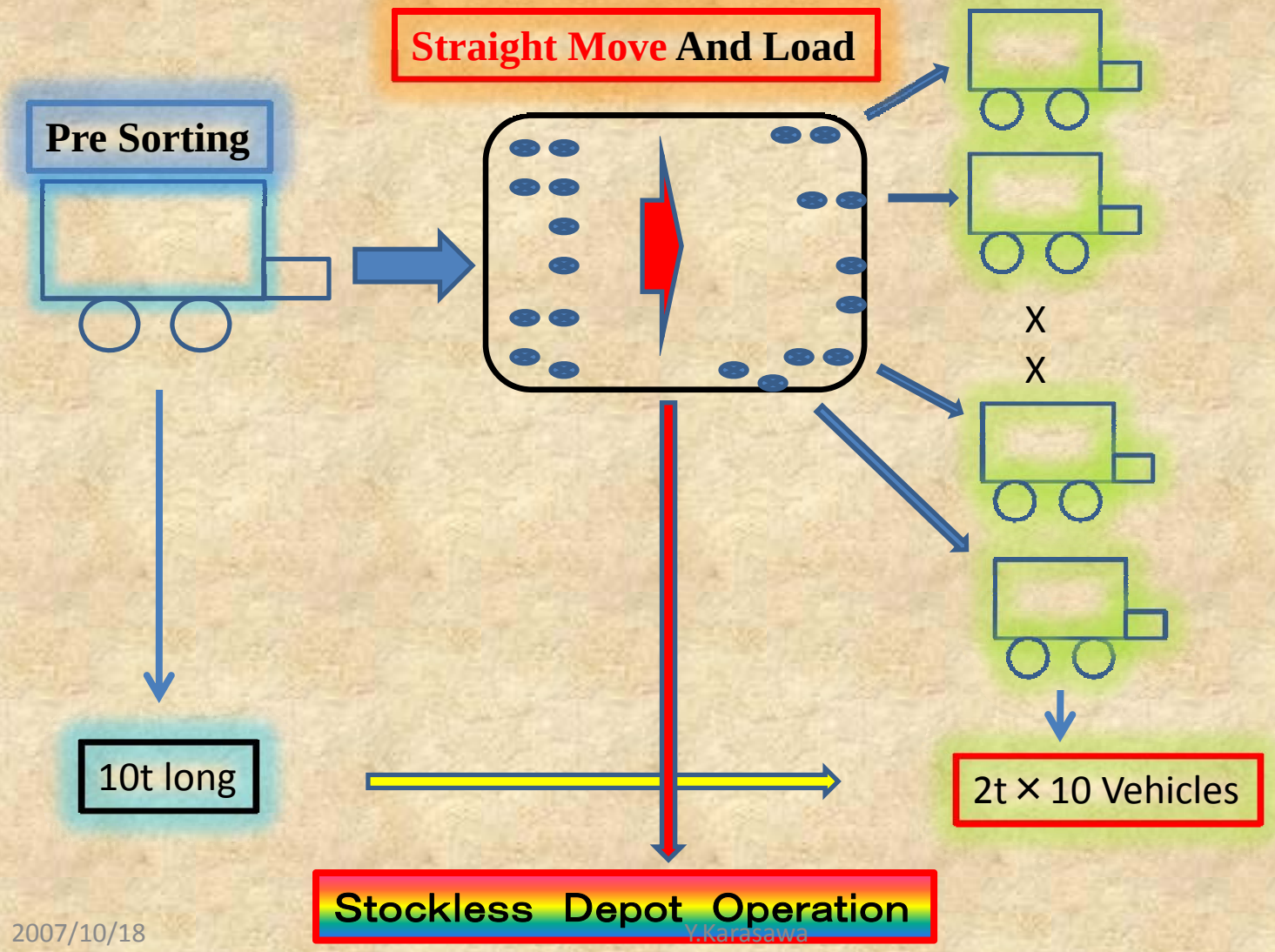
2.3.Transportation System Operation



2.3.1.Cross Dock Operation

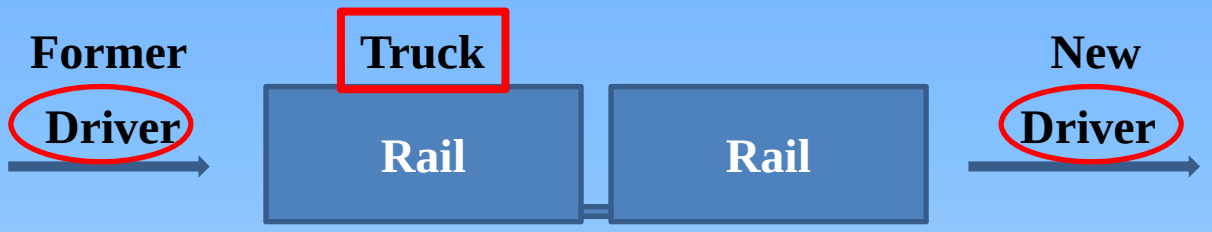


2.3.2.Demountable Operation



2.3.3.Piggyback and Zattel-OKOMBI

<Japan Between Tokyo and Niigata>



Problem:Facilities

Problem:Kombi

<Zattel-Austria National Railways>

2.3.4.Modal Shift & Linkage ~ Hardware

<Rail Hardware>

Piggyback System

Double Decker ～Southern Pacific Rail Road

Zattel System～Austria National Railways

<Automated Warehouse Hardware>

Double Deck

Double Deep

Flow Rack

Stacker Crane

Stacking Elevator

Dolly

Transfer Loader

Dock Leveler

Palletizing Robot

Palletizer/Depalletizer

Trigger
Optical Scanner
Laser Scanner

Limit Switch
Cam & Timer

Digitizer
Radioactive

Punched Card
Kimball Tag
Hybrid Medal Button

B. Concluding Remarks :

What is a Key Word for All These Kaizen ?

Speed, Just Speed

“ Speed is one of the most Important Parameters for Logistics and SCM”

Inventory /Effectiveness/Efficiency/Quality/Productivity‥‥‥‥

Ⅲ. Logistics System Progress

3.1. Logistics Related System Progress

1. Horizontal to Vertical Dissemination of System Concept &Technology
2. Production System

3.2. Logistics System Development

3.3. Development of Material Flow

Discontinuous Material Flow- Up to 1970

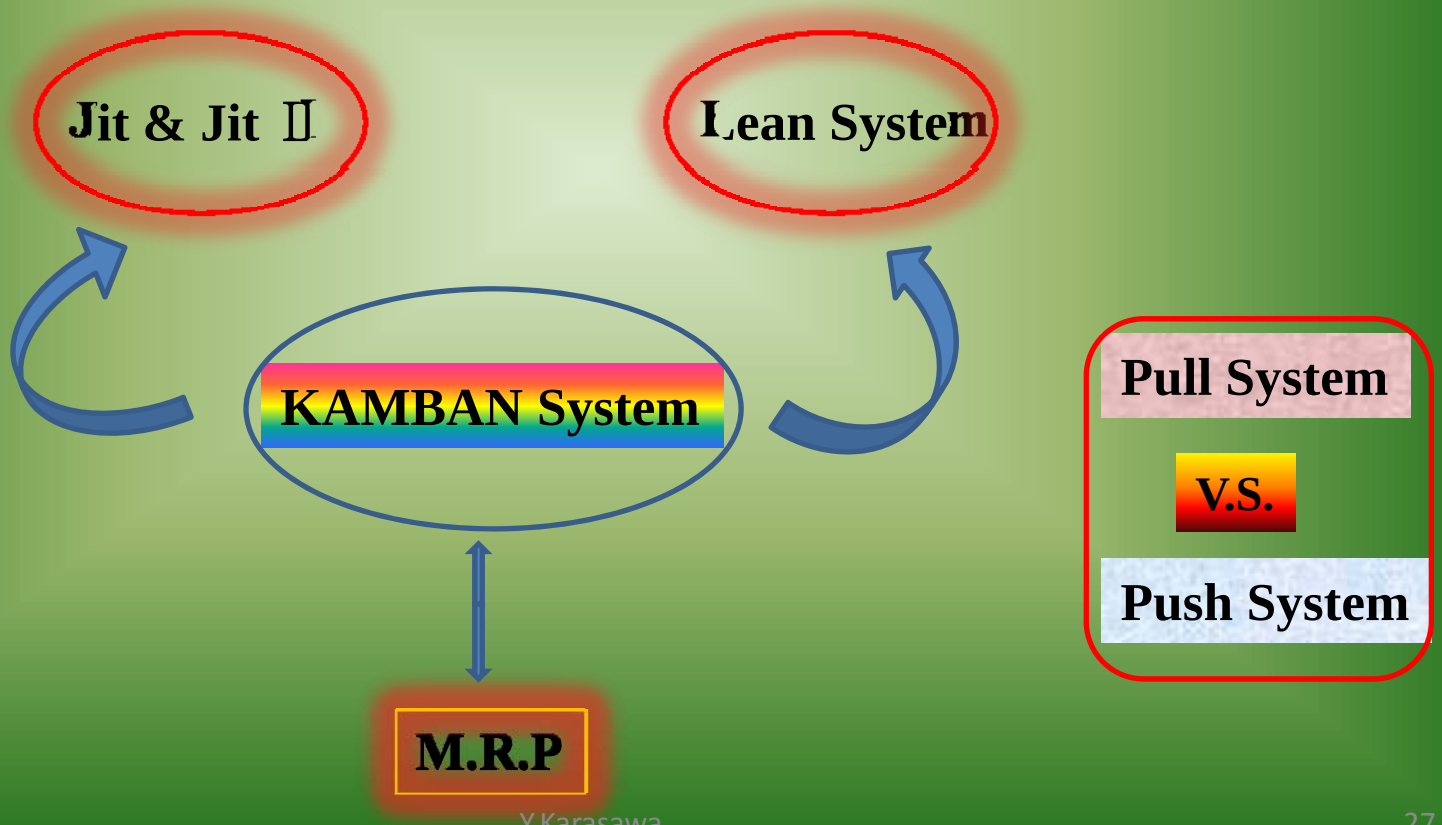
Continuous Material Flow-Toyota Kamban System

Synchronic Material Flow – Bender Management Consulting

3.4.Development of System Span of Control

3.1. Logistics Related System Progress

1. Horizontal to Vertical Dissemination of System Concept& Technology



2. Production System Progress

CONWIP — -Pull System

Theory of Constraints — -Late1970 Scheduling Soft

Integrated Control — -Over All Optimization

Series System with Shared Buffer Space — -General kamban System

Multi -Stage Finite Buffer System — -Finite Buffer Between Job Shops

Local Control — -Independent Job Shop Production

Kamban System — -Pull System
-Centralized Decentralization System

MRP: Material Requirements Planning — -1960's Pull System
-Master Production Scheduling with Time Bucket

MTO: Make To Order System
- -Mfg. No.CTL System
- -Parts Oriented System
- -Mfg. Seat Reservation System

MTS: Make To Stock System
- -Base Stock System
- -Concurrent System

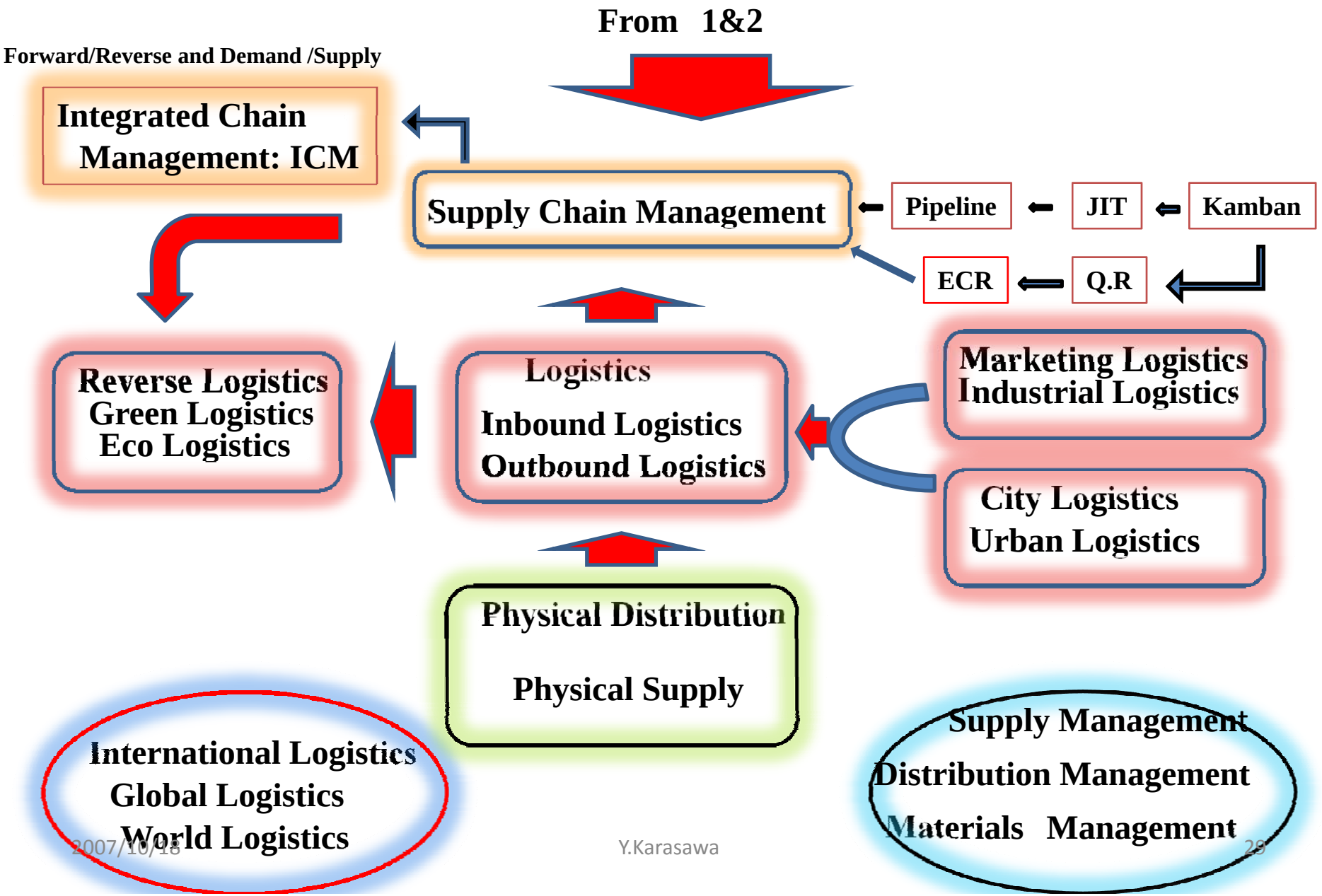
Process Industry
- -Profit MAX
- -Risk Tree
- -Plant Automation

Semi-Process Ind.
- -Profit/Cost
- -Plant Automation

Fabrication & Assembly
- -Cost Mini.
- -Factory Automation

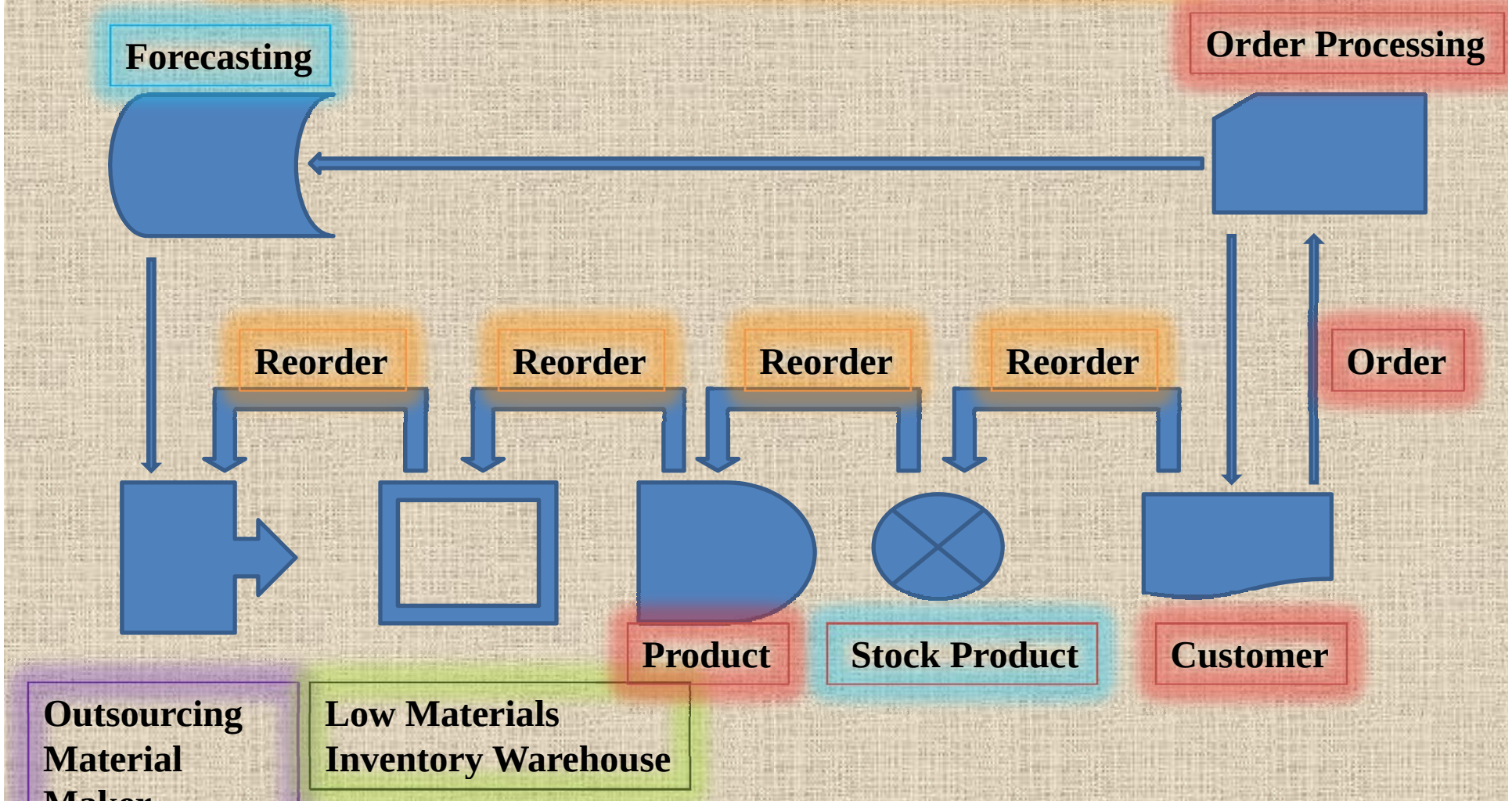
Parts Industry
- -Cost Mini.
- -N.C./G.T./M.C.

3.2. Logistics System Development

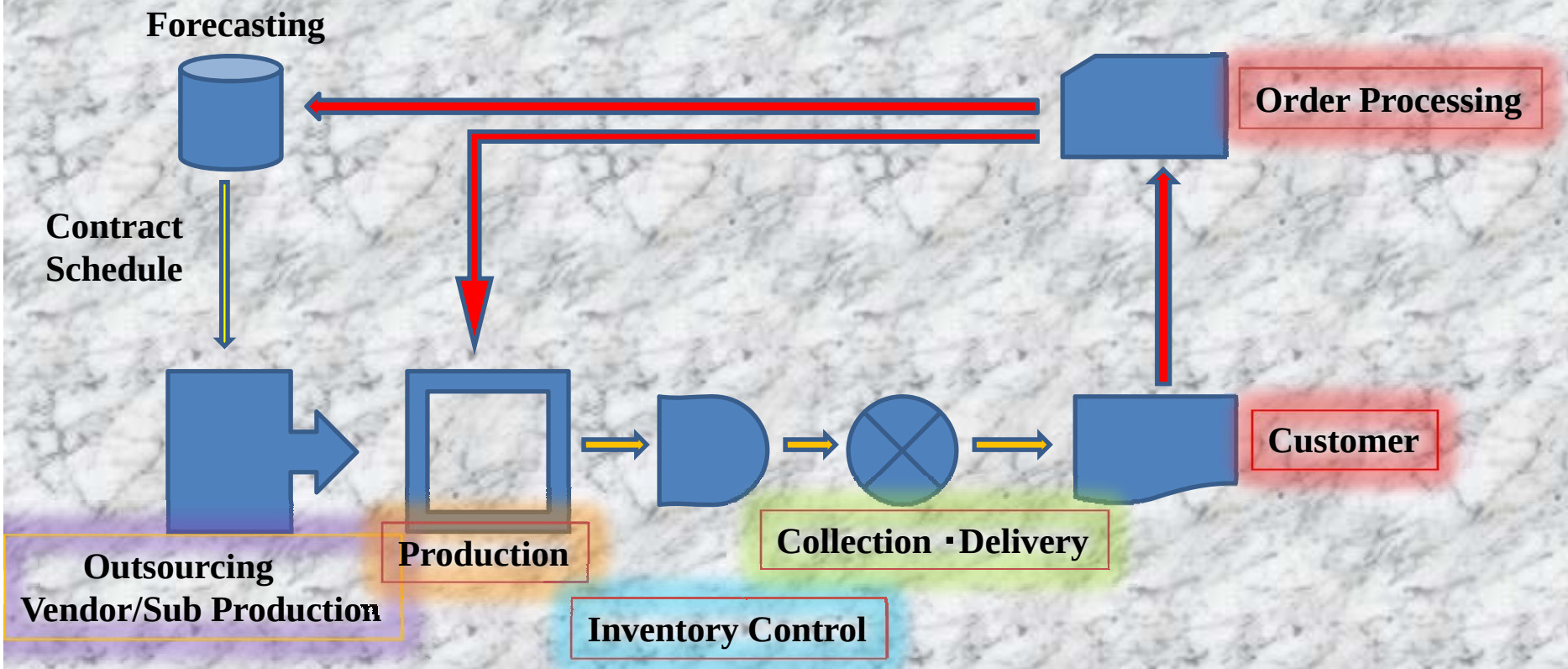


3.3. Development of Material Flow

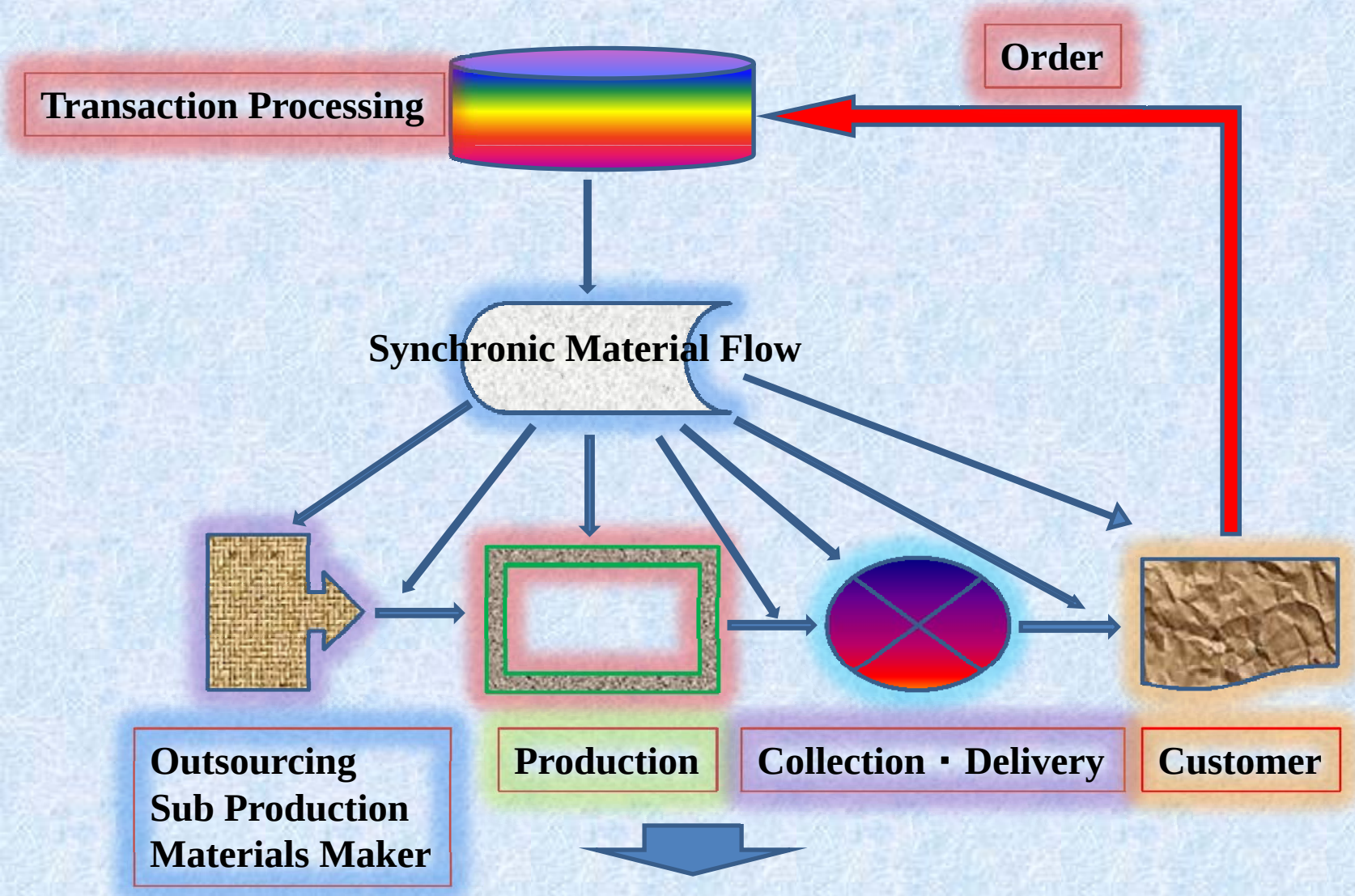
1) Discontinuous Material Flow- Up to 1970



2) Continuous Material Flow-Toyota Kamban System



3) Synchronic Material Flow – Bender Management Consulting



4) Development Process of Material Flow

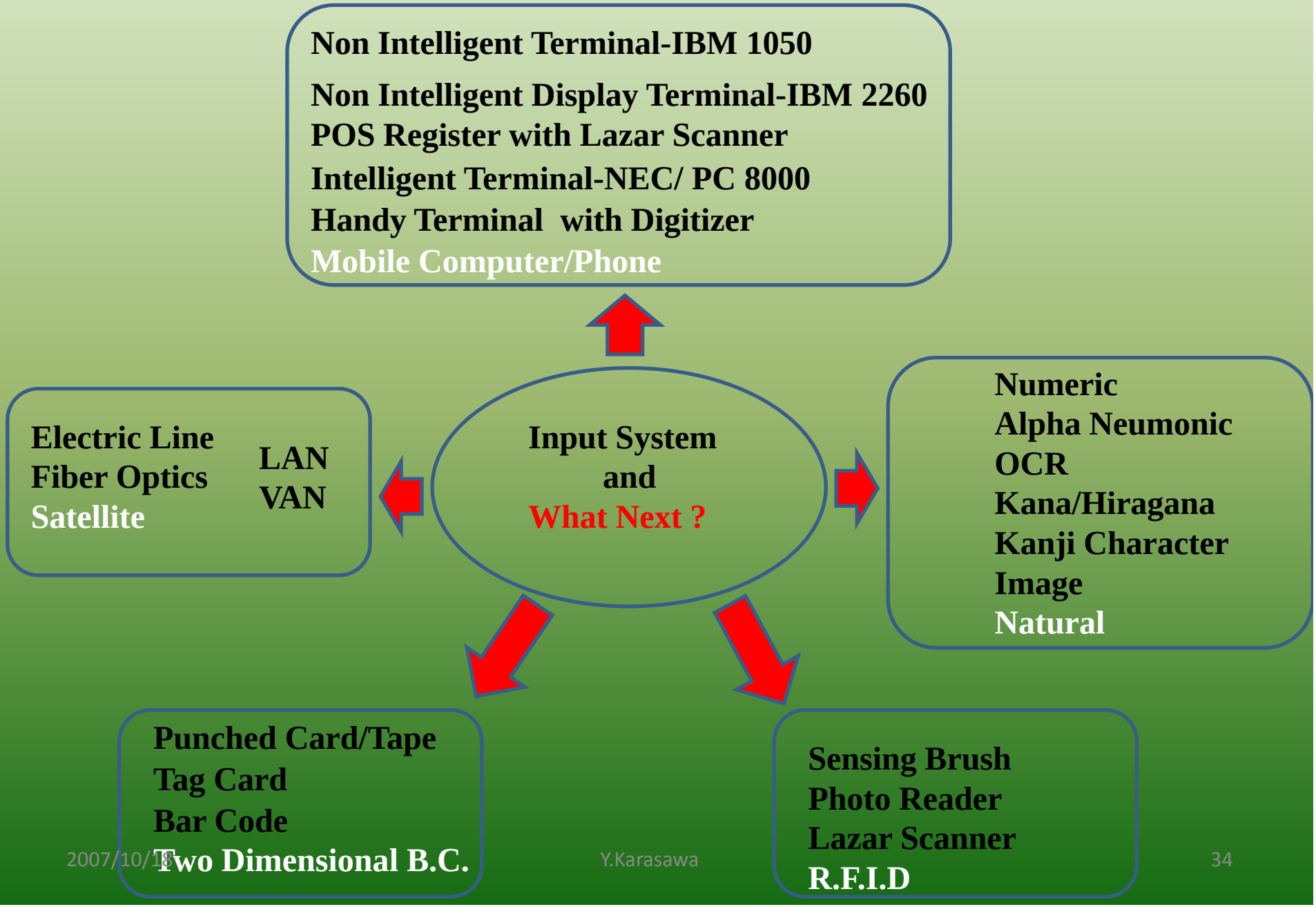
Discontinuous Material Flow- Up to 1970

Continuous Material Flow- Toyota Kamban System

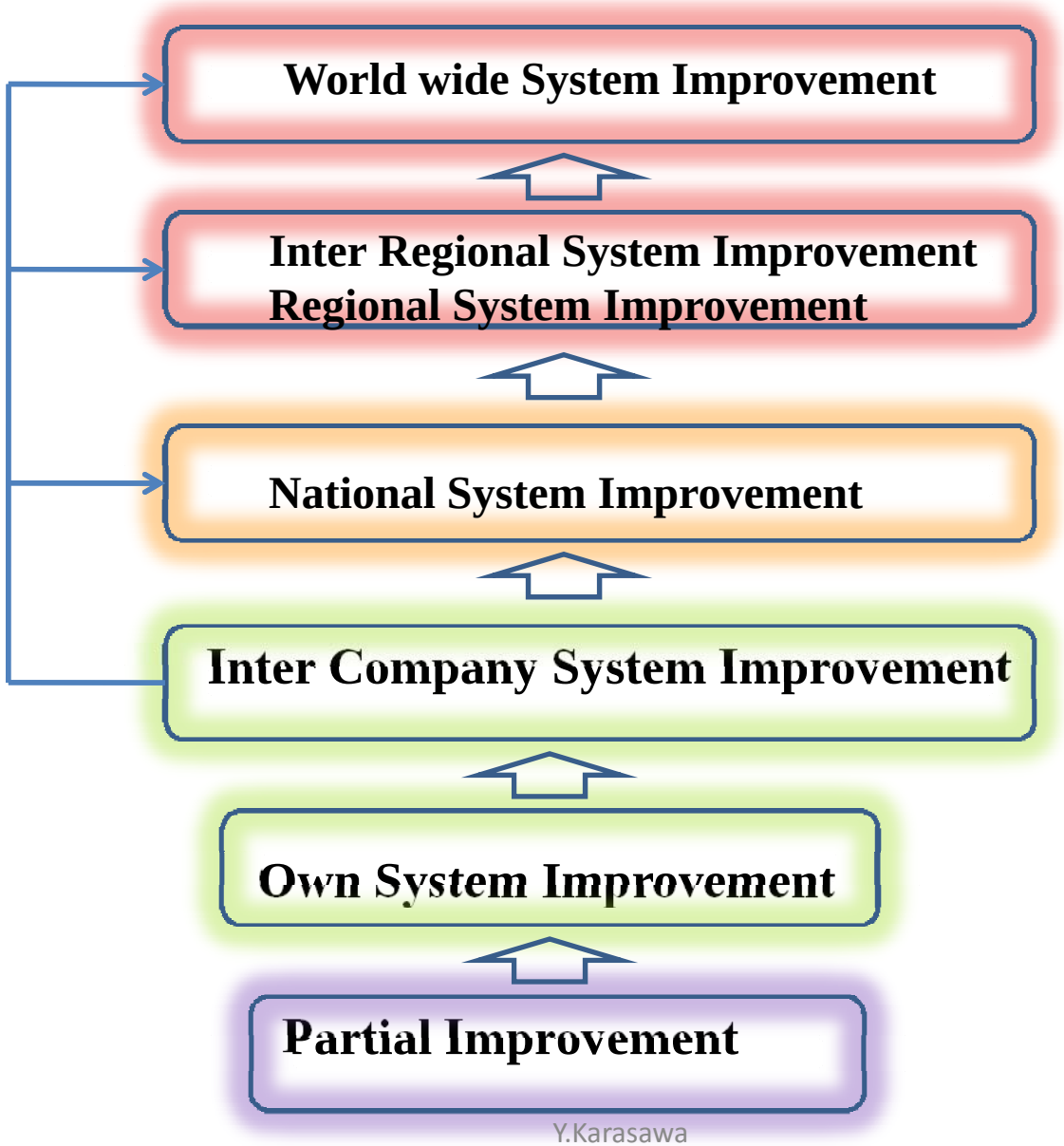
Synchronic Material Flow – Bender Management Consulting

Net Work Material Flow At High Speed Synchronic Operation

3.4. Input System



3.5. Development of System Span of Control



C. Concluding Remarks

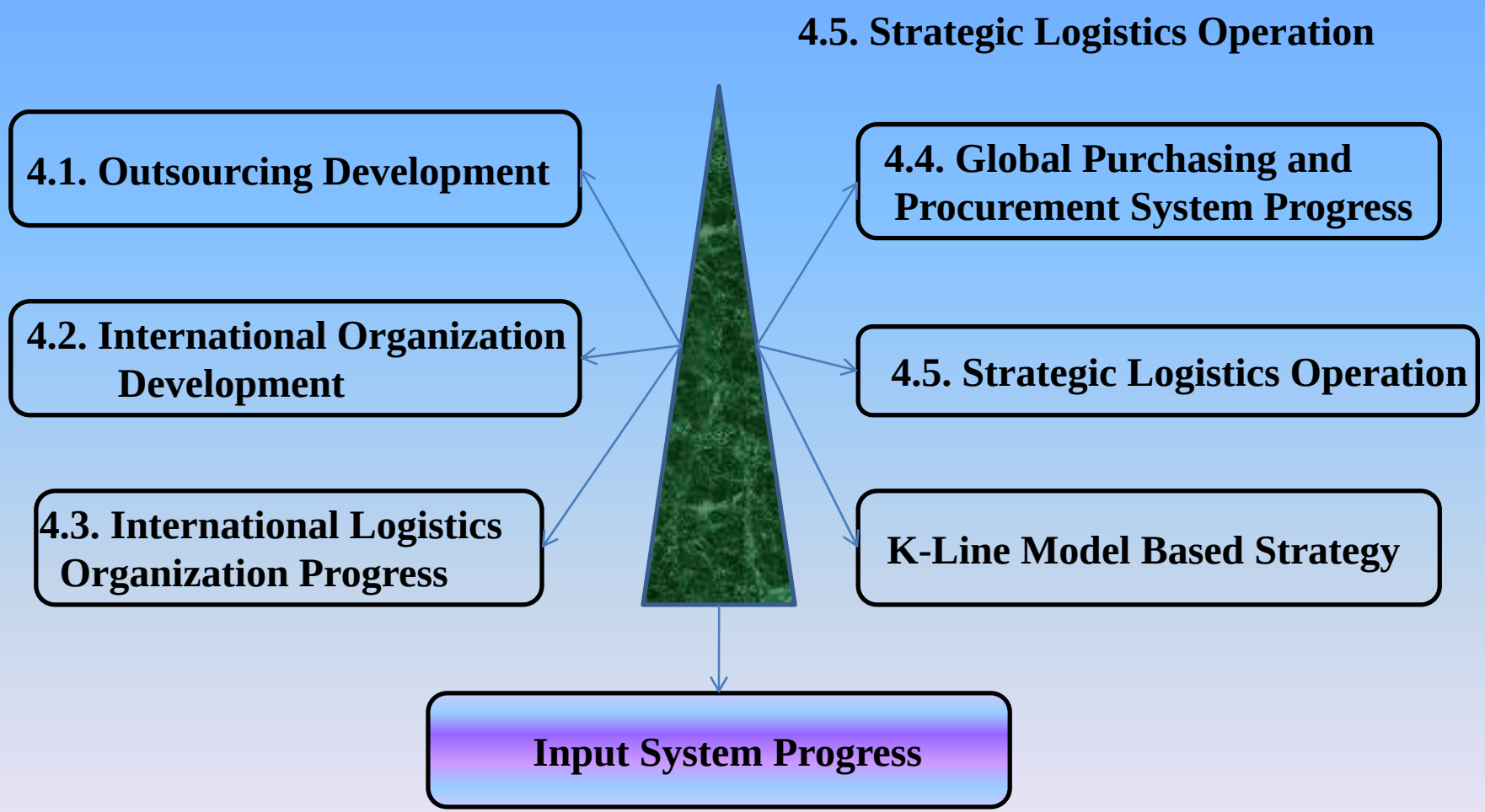
“ What are Major Terminology for This Session ? ”

Synchronic, Worldwide, Human Oriented

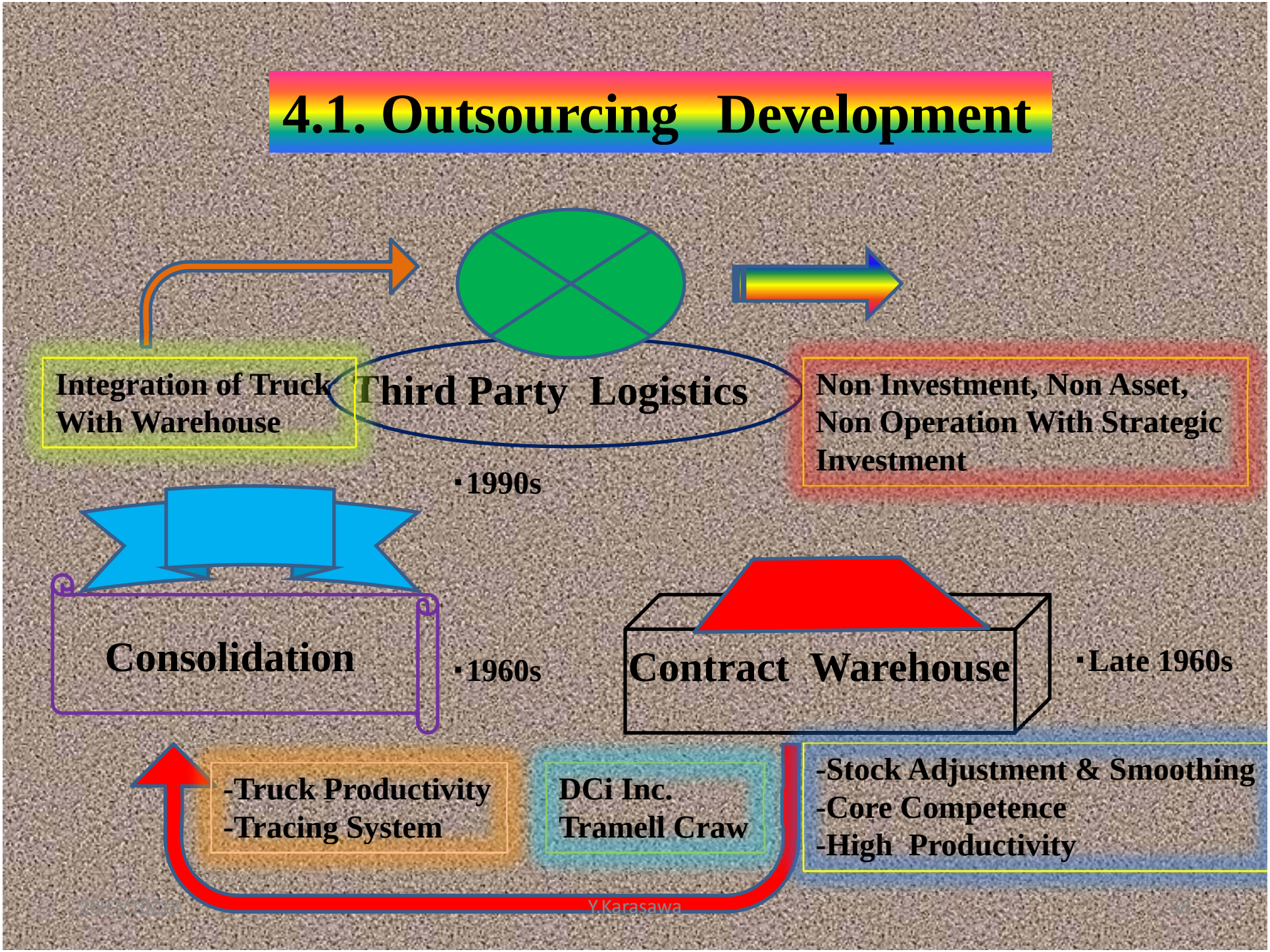
~Beyond Physical Space and Human Oriented Axis

Synchronic, Continuous, Human Oriented

Ⅳ. Logistics Strategy and Management



4.1. Outsourcing Development



4.2. International Logistics Organization Progress

in parallel with Progress of Int'l Org.

Outsourcing

The Third Party Logistics

Integrated Logistics Operation Company

Management Company

Transportation Based Company

Warehouse Based Company

Logistics Division～Profit Center

Logistics Division ～Cost Center

Department of Logistics

4.2. Int'l Logistics Organization Development

Integrated Regional Management Organization

- Control & Adjustment for Common Affairs in Region. Ex. Hiring ,Logistics, Accounting, Etc.
- Scale Merit Perusing Operation

Grid Organization

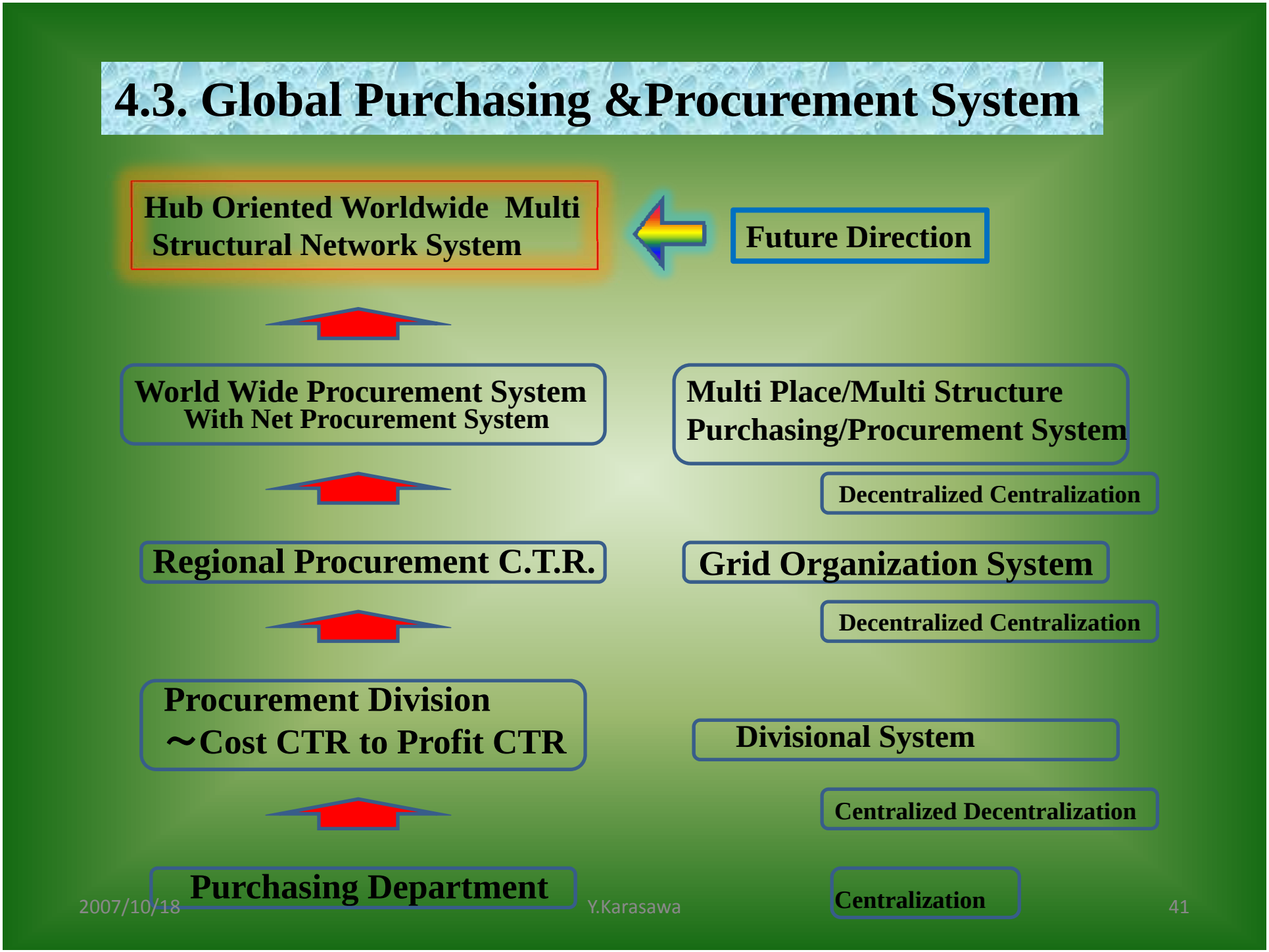
- Profit by Division
- Mesh Oriented Control
- Integrated Strategic Operation

Division System by Product ～Profit CTR Type

- Division Oriented Operation
- Non Integrated Operation

Division System by Region ～Cost CTR Type

4.3. Global Purchasing &Procurement System



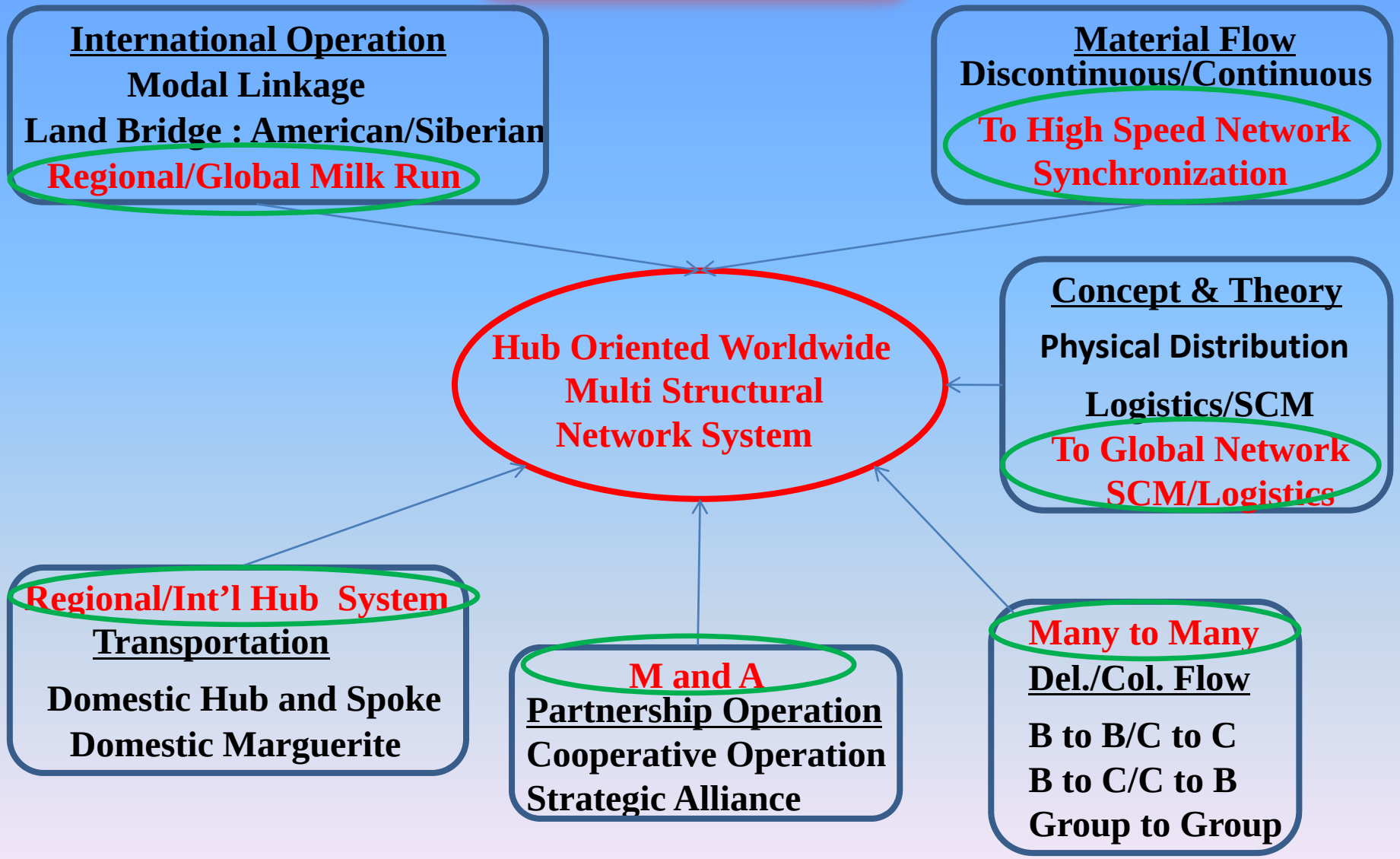
4.4. Strategic Logistics Operation and MGT

D. Concluding Remarks

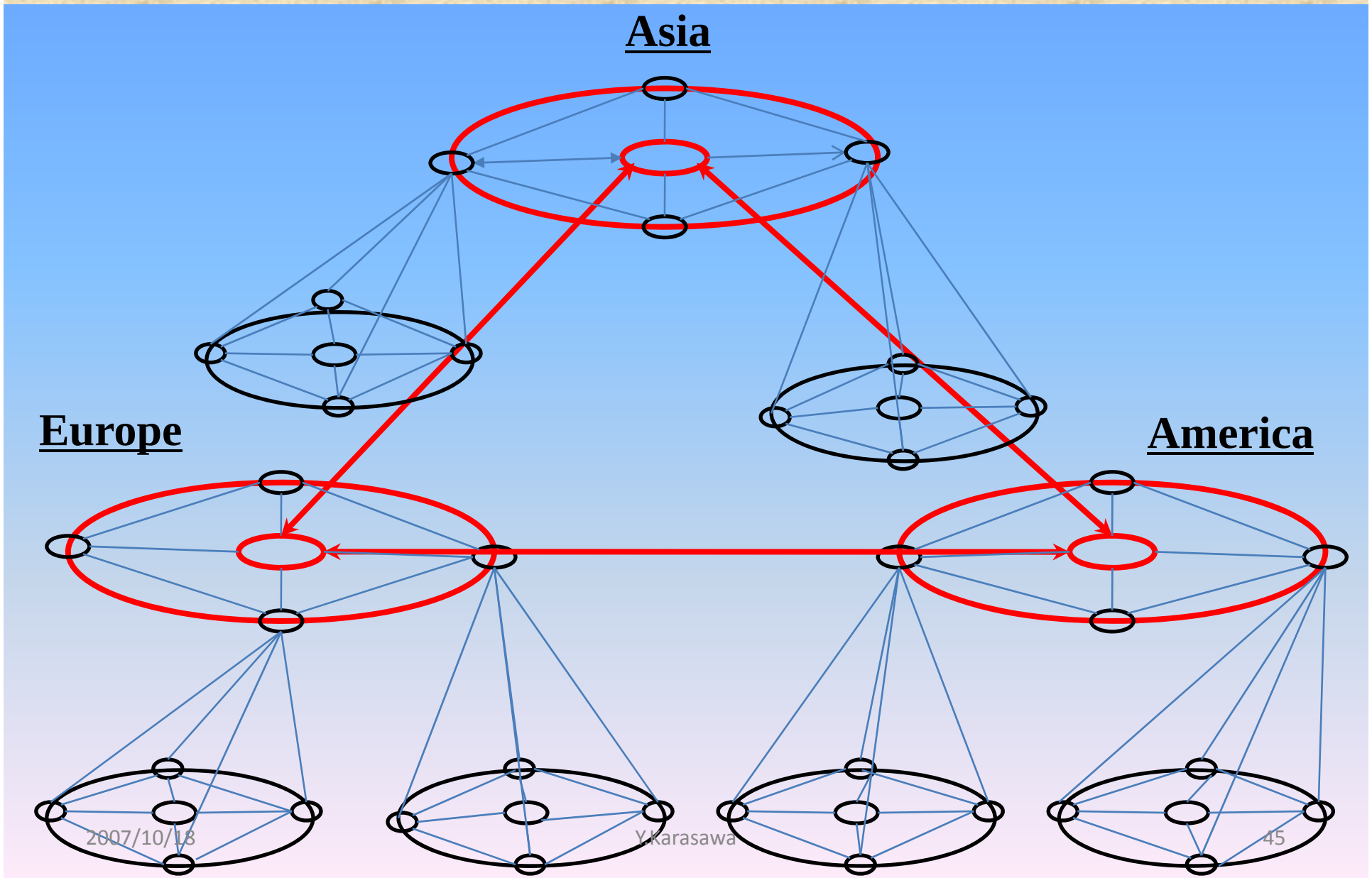
“ What are Terminologies for This Session ? ”

Outsourcing , Grid Type with Regional Head Quarter, M&A

Summary


International Operation
Modal Linkage
Land Bridge : American/Siberian
Regional/Global Milk Run
Material Flow
Discontinuous/Continuous
To High Speed Network
Synchronization
Hub Oriented Worldwide
Multi Structural
Network System
Concept & Theory
Physical Distribution
Logistics/SCM
To Global Network
SCM/Logistics
Regional/Int'l Hub System
Transportation
Domestic Hub and Spoke
Domestic Marguerite
M and A
Partnership Operation
Cooperative Operation
Strategic Alliance
Many to Many
Del./Col. Flow
B to B/C to C
B to C/C to B
Group to Group

Summary : What is a Hub Oriented Worldwide Multi Structural Network System ?



What should be done ?

Quick Action :

- Innovate ‥‥‥S.S.T./T.P.!!
- Breakthrough‥‥‥ With Mix Up of S.S.T./T.P.!!
- Promote/Enhance‥‥‥Hybrid & Compound of S.S.T./T.P.!!
- Implement ‥‥‥Cross Industry S.S.T./T.P.!!

Considerations:

- Enhanced Borderless Approach
- Supper Dynamic Inderdiciplenery Approach

Note) Science, System, Technology, Theory and Practice

Scope of System

Two Values
Binary
Centralization v.s. Decentralizatin
Left v.s. Right
Black and White
Conservative v.s. Radical
Structured v.s. Unstructured
……

Little Change but Quality Change in Corresponding with Environmental Change : Science, Technology, Management Style, etc.

Ⅳ. Conclusions and Issues

Conclusions:

-Have made clear a rough progress of logistics Kaizen elements

-Have shown each progress pattern of logistics elements

Issues:

A further indepth study should be made.

Reference

1.Y.Karasawa, "A basic Research on Rationalization Strategy in Japan", Proceedings of the 2nd ICLS,P.P.A49-59,May 2006.

2.Y.Karasawa, "A Basic Research on Cooperative Operation System", Proceedings of the10th ISL,P.P646-649,July 2006.

3. Y.Karasawa et al, "A Basic Research on Optimization Model for the Manufacturing and the Transportation by Jit-Kamban Supply Chain System", Proceedings of the 1st ICLS,P.P.293-298,Nov.,2004.

4.Y.Karasawa et al, " Japanese Industry Overviews based on Optimal Hub Strategy in East Asia", Proceedings of 9th ISL,P.P.696-701,July,2004.

5.Y.Karasawa et al, " A Study on Effectiveness of Speed as a Parameter of Supply Chain Management" , Supply Chain Forum, An International Journal Vol.4- No2003,P.P54-61,Dec.,2003

6.Y.Karasawa,"Logistics Kaizen~Past and Future",Proceedings of The3rd ICLS P.P.3-8, Aug.,2007 Yokohama, Japan IFLS

International Operation

Pattern of Cross Modal Linkage

	Sea	Air	Rail	Road
Sea	—	Ⅰ	Ⅱ	Ⅲ
Air	—	—	Ⅳ	Ⅴ

4.6. Kline Model for Site Selection Strategy

-Population Density Line with Major Trunk Railway Line

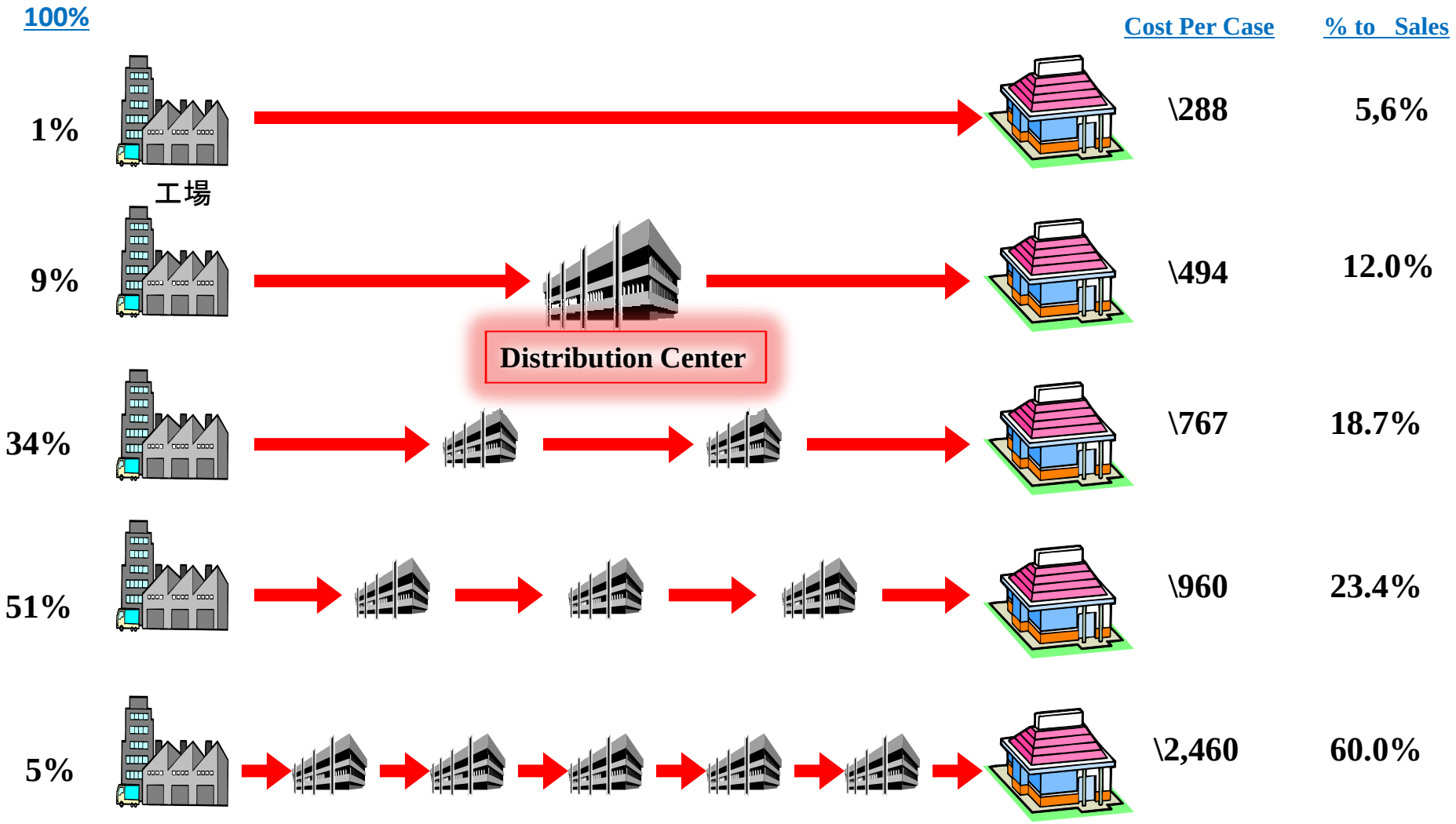
Japan - Shinkansen	Tokyo	Nagoya	Osaka	Fukuoka	%	
13,000	1,277(813)	(223)	883(260)	230(134)	20.1(9.2)	:Population :Distance
U.S.A. -AM Truck	Boston	New York	Philadelphia	Washington D.C.		
30,000	80000	19,301 (8,008)	I,244(1,518)	500(57)		:Population :Distance
U.K.:	London	Birminghan	Manchester	Liver pool		
10000	(7,074)	(1,021)				:Population :Distance
France -TGV	Paris	Lyon	Avignon	Marseille		
5,000	(2,125)	512km	742 km	(797) 863km		:Population :Distance

K line Model for Site Selection Strategy

Population Density Line with Major Trunk Railway Line

Korea:	Seoul	Dae-Jung	Teague	Busan	%
40,000	(10,024)	(1,463)	(2,547)	(3,685)	:Population
				450km	:Distance
Germany -ICE	Berlin	Hamburg	Koln	Frankfurt	
XXXXX	(3,387)	(I,705)	(1,004)	(647)	:Population
					:Distance
Italy	Napoli	Rome	Firenze	Milano	
XXXX	(1,000)	(2,542)	(43)	(1,272)	:Population
	227	284	585		:Distance

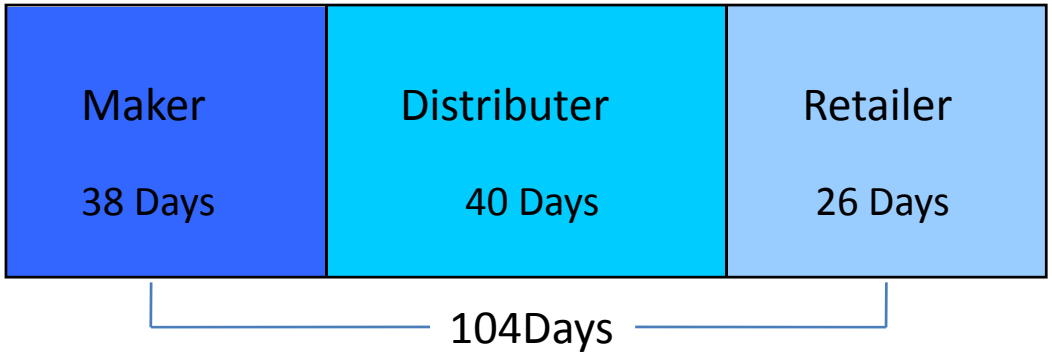
Distribution Channel Overview in 1999



出典:1999年4月号
流通設計 P20

Status Before/After ECR Installation-Food Processing

Before ECR Installation



After ECR Installation

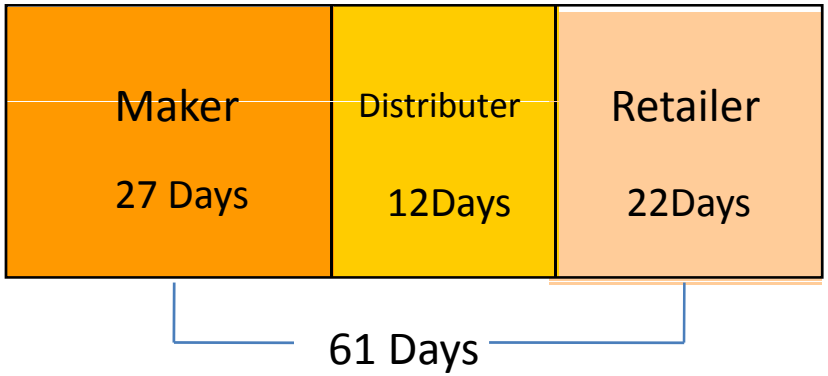


図1-1　S.C.Mの用語

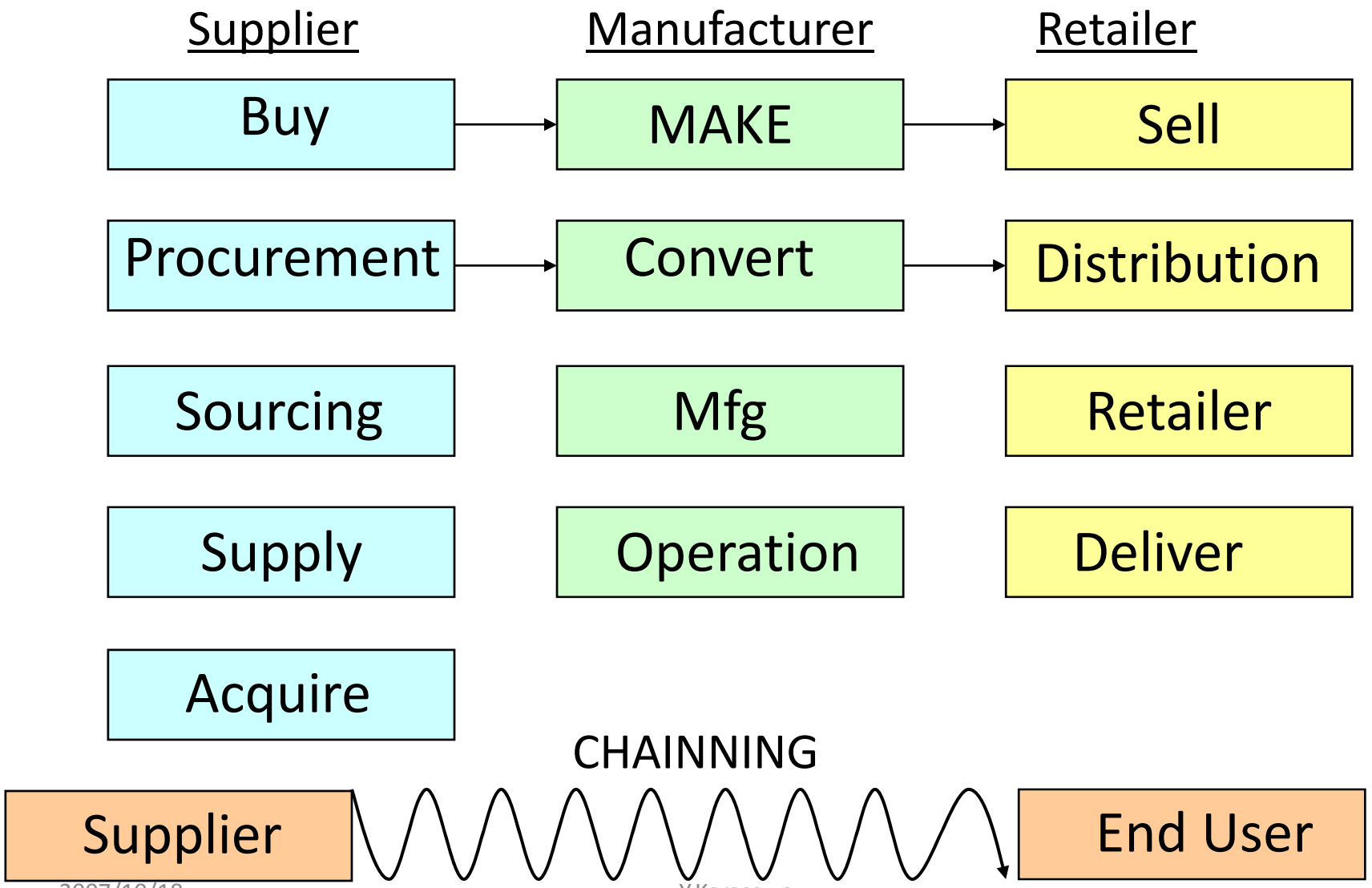

Supplier
Manufacturer
Retailer
Buy
MAKE
Sell
Procurement
Convert
Distribution
Sourcing
Mfg
Retailer
Supply
Operation
Deliver
Acquire
CHAINNING
Supplier
End User

図1-6　日本の食品流通の流通在庫（93年度）

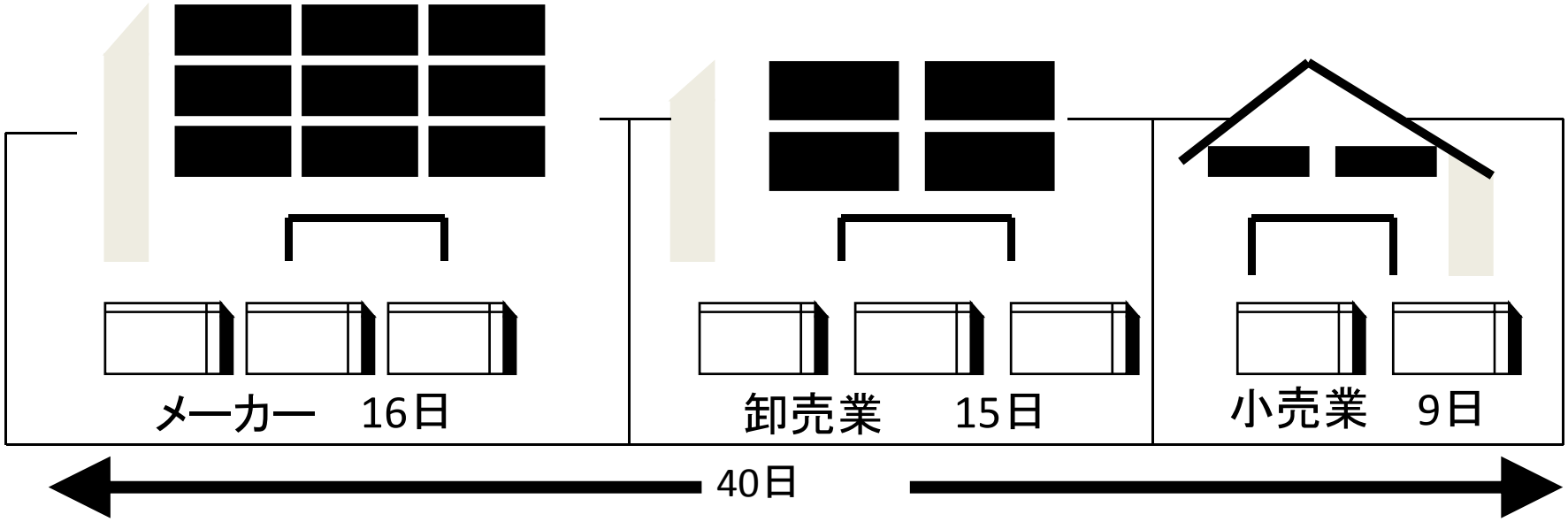


表4　加工食品企業の流通在庫(93年度)

(単位：日)

メーカー		卸売業		食品スーパー	
味の素	23	国分	6	マルエツ	13
雪印乳業	26	菱食	7	東急ストア	13
日本ハム	21	明治屋	8	ヨークベニマル	6
伊藤ハム	16	雪印アクセス	10	ライフコーポレーション	14
明治乳業	30	松下鈴木	—	いなげや	8
ニチレイ	29	加藤産業	6	ヤオハンジャパン	12
森永乳業	22	旭食品	8	チェーンストアオークワ	12
プリマハム	16	佐藤	8	東武ストア	12
キューピー	25	三友食品	6	相鉄ローゼン	11
日清食品	8	西野商事	7	カスミ	10
平均	22	平均	8	平均	11

注1：ヤマエ久野、マルイチ産商は加工食品の比率が50%を割っており、対象から外した
注2：メーカーは棚卸資産回転日数、卸、小売は商品・製品回転日数
注3：売上高は総売上高を採用したが、日数に影響はなし
注4：商品・製品及び棚卸資産は当期の期末残高

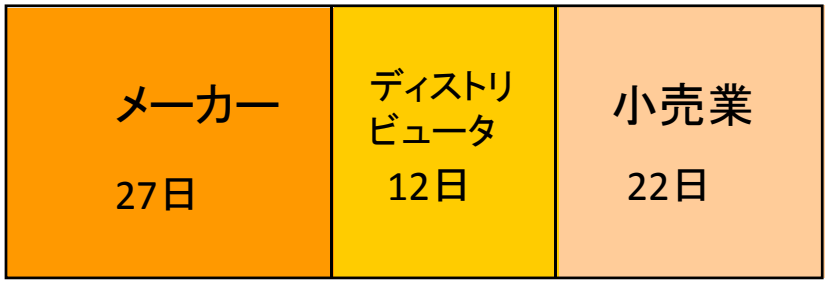
出展：TDB REPORT VOL11 1994.12　p22

図1-7　ECR導入前・後の加工食品業界の流通在庫

・現行

104日

・ECR導入後



61日