

Improving restaurant productivity Introducing service engineering

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Concept
Tradition and Craftsmanship



Corporate Introduction

- Name : Ganko Food Service co., ltd
- Established : Apr, 1963 in Osaka city
- Business Category: Management of restaurant
Production and export of food item
- Employees : Approximately 4,000 (include part timer)
- Sales revenue : \$ 300 million (US)
- Stores : 100

Business environment of Japanese restaurant industry

■ Chain store management system

- Eating out was luxurious leisure because restaurant was expensive
- Chain store system realize low price restaurant.
→ Eating out has become popular leisure since 1970's

Central Kitchen

- to reduce cooking staffs at each restaurant store
- to reduce kitchen equipment at each restaurant store
- to stabilize quality of food products



Multi store operation

- to reduce ingredient cost by volume purchasing
- to reduce investment cost by volume construction



Simplification of menu and service

- to reduce labor cost by introducing part timer
- to reduce total kinds of operations at store



■ Growth of Japanese restaurant industry

In 1969, Japanese Government permit foreign companies to invest in the Japanese restaurant market

In early 1970's, Innovative Japanese restaurant companies introduce chain store management system

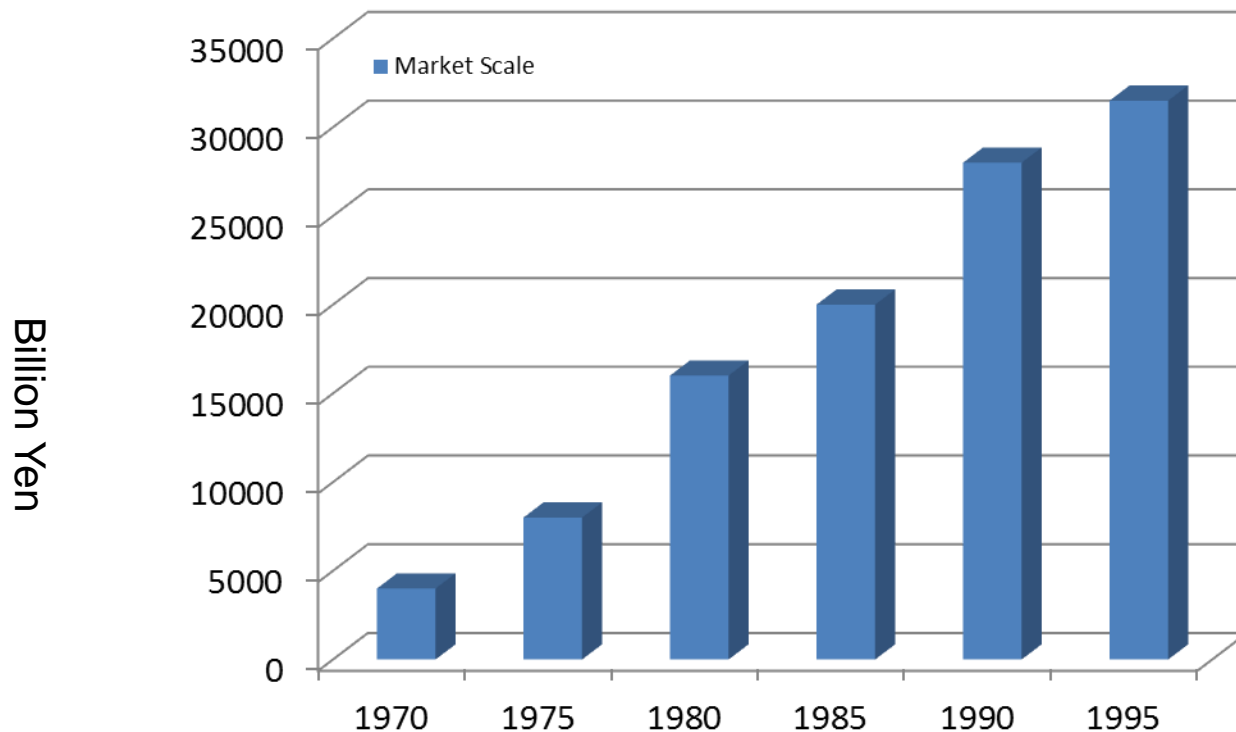


Fig: Market size of restaurant industry in Japan
Japan Food Service Association (2013)

■ Key Industry

As the market size of restaurant expand, the restaurant industry has become one of the key industry in Japanese economy

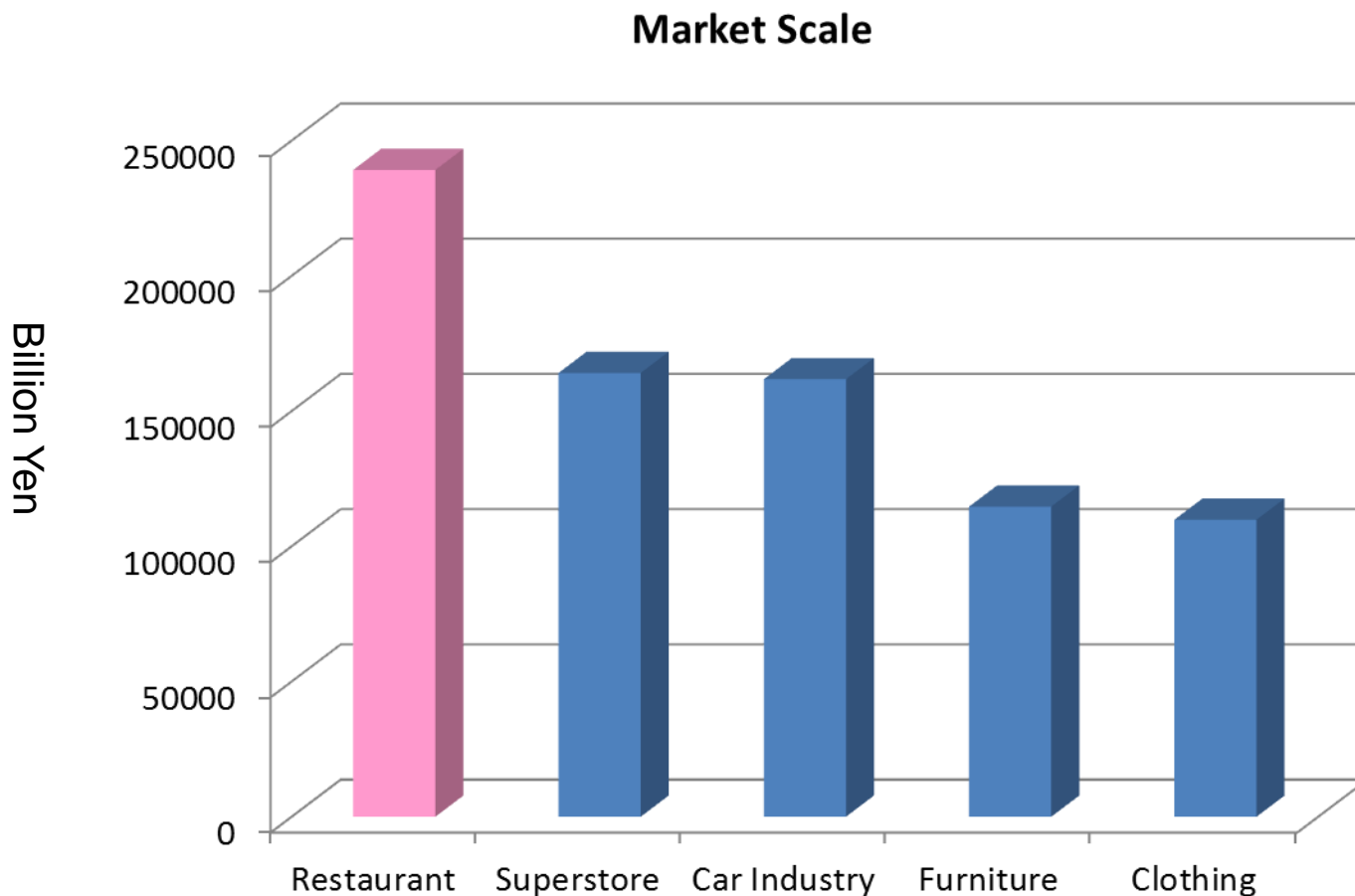


Fig: Market scale of industries in Japan
Japan Food Service Association (20113)

■ Service Economy

	1990	2004 (2003: Japan, U.S.)
Japan	58	68
U.S.	70	77
England	63	73
Germany	61	70
France	70	76
China	31	41
India	41	52
Korea	50	56
Singapore	—	65
Thailand	50	46
World Average	61	68

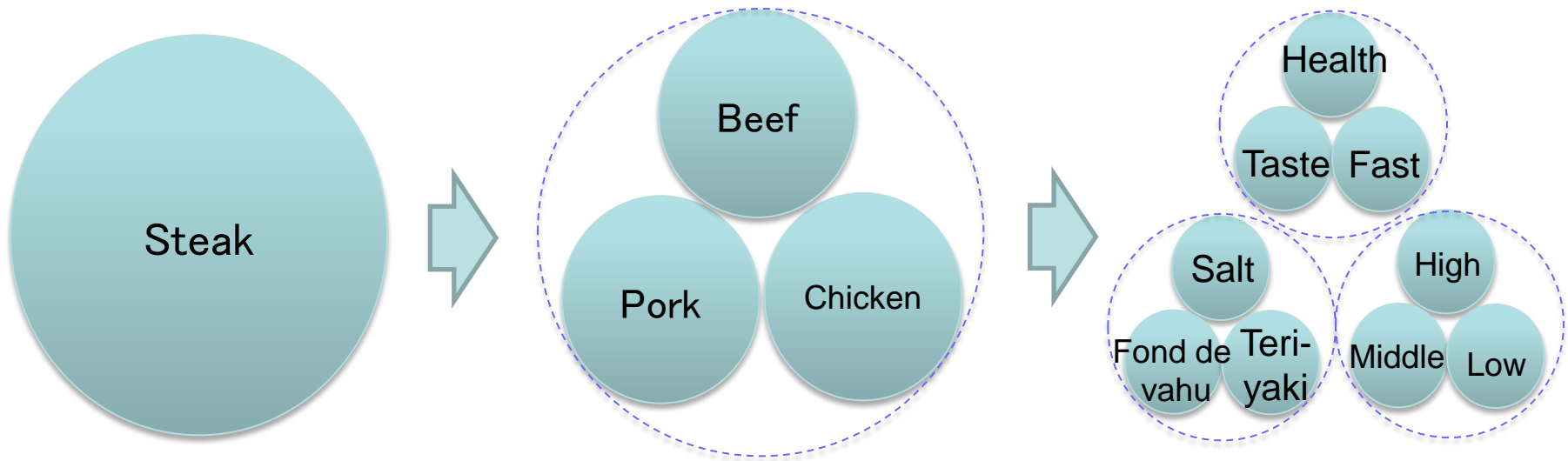
73%(2009)

(%)

■ Changing Market Environment

Demand side “Diversification of customer taste”

- Customers have experienced various types of restaurants
- Therefore, customers have become “well-experience”, and their preferences are very diverse



■ Changing Market Environment

Supply side “Market has become Competitive”



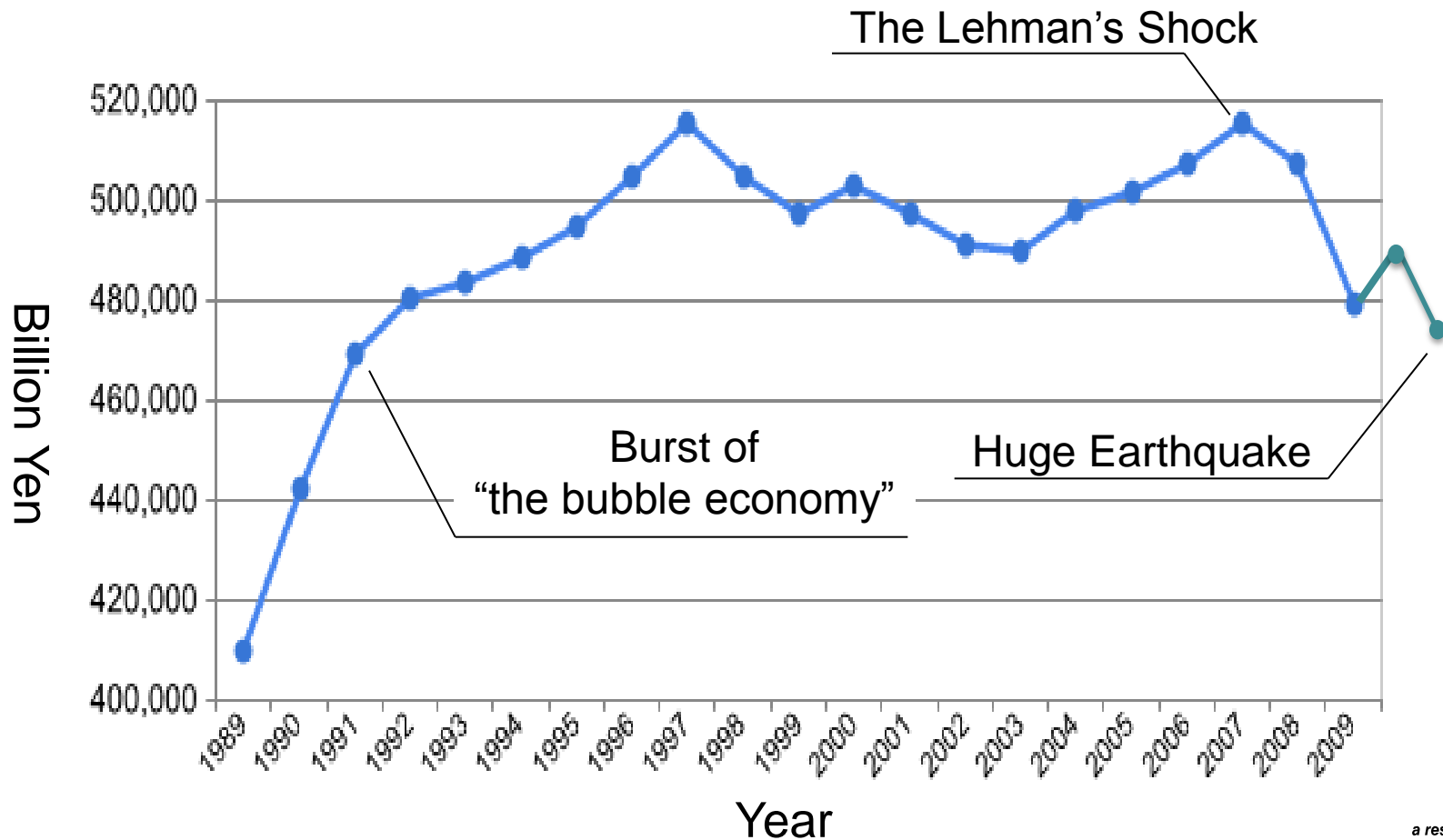
Straight Burger
LOTTERIA





■ Sluggish Japanese economy

- Japanese GDP had been increased for more than a century
- “The burst of bubble economy” bring sluggish economy
- Further, economical and natural disaster hit Japanese economy



■ Japanese restaurant business in recent years

- In 1990's, revenue-growing stop, and gradually reduce in recent years
 - ∴ Overstores, Reduction of Population, Long-Term Deflation
- Most critical reason is customers' change in taste

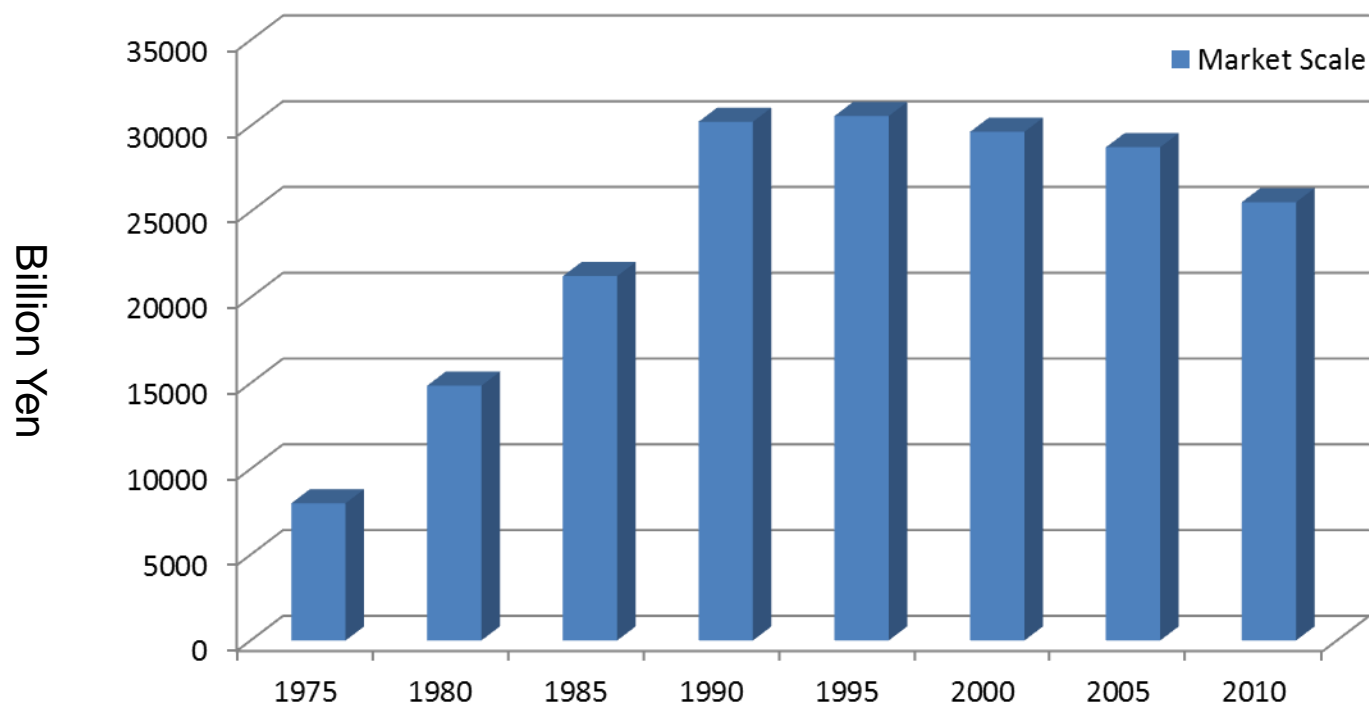
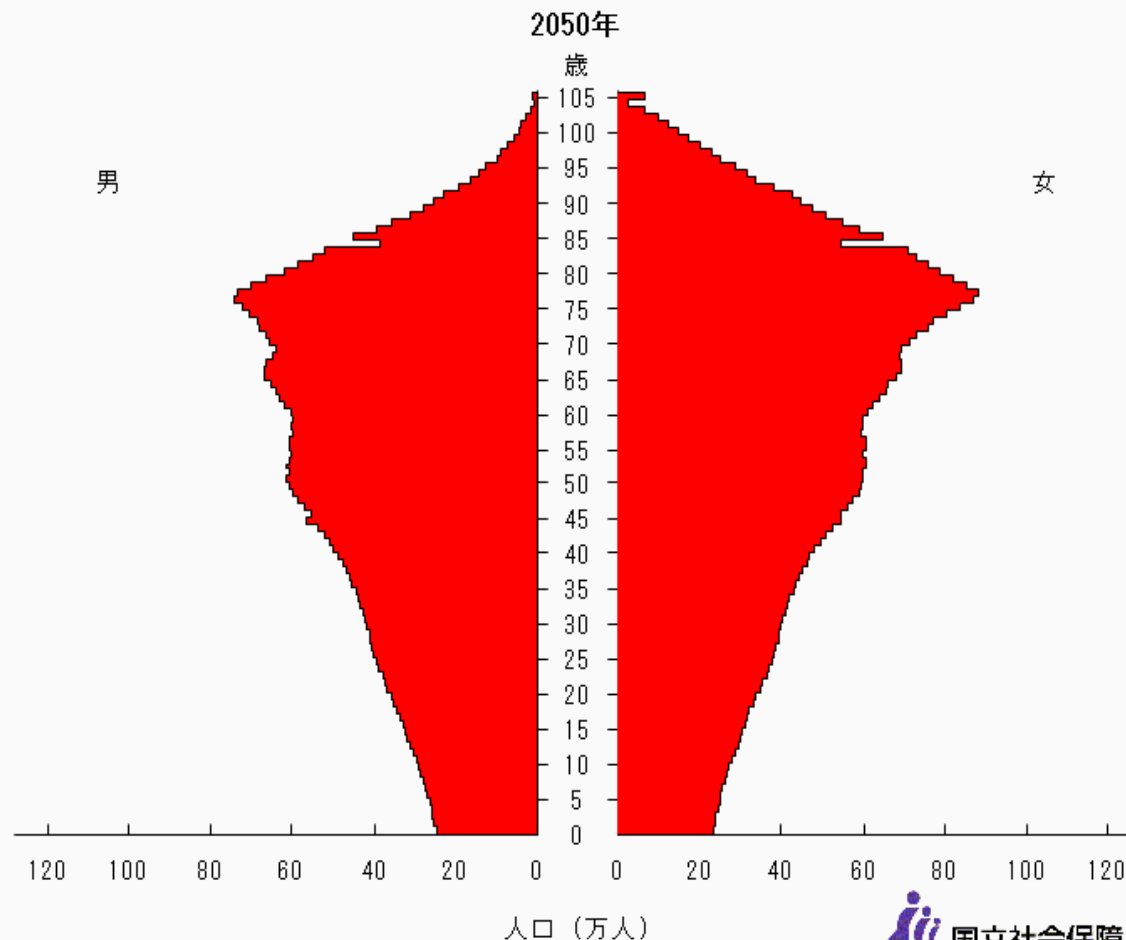


Fig: Market scale of restaurant industry in Japan
Japan Food Service Association (2011)

■ Reduction of population

- Japanese population start decreasing since 2006
- Aged people increased, and young people decreased
- Industrialized countries face the same problem as well as Japan



■ The crisis of the traditional restaurant

In Japan, the market scale of the traditional Japanese restaurant has been decreasing for several decades.

Customer's preferences have changed for decades.

In contrast, traditional restaurant persist to provide traditional (out of date) cuisine.

→ The traditional restaurant should bring the taste and dishes up to date for current customer

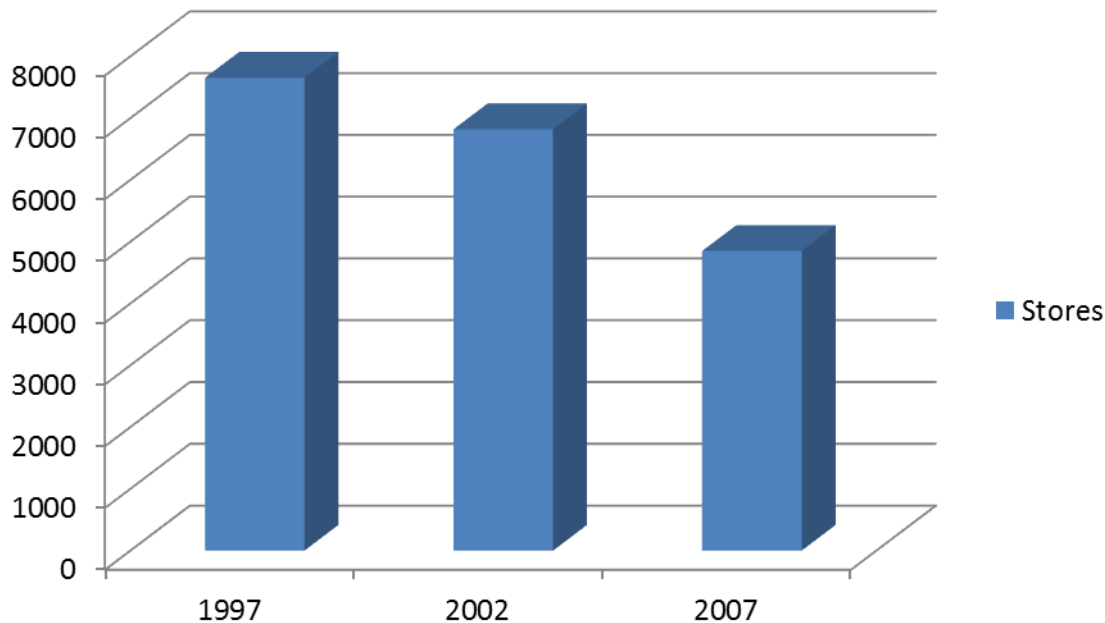


Fig: Transition of total of traditional Japanese restaurants
Ministry of General Affairs (2009)

■ Summery

◇ Changing market environment

- As market size expand, restaurant industry has become competitive
- Customer preferences has become diversify. Therefore, Chain store system (Simplification) should be advanced to adopt customer change

◇ Market shrink

- long-term depression and deflation bring reduction of average customer budget and frequency of eating out
- In recent decades, customer prefer western style, therefore, market size of Japanese traditional restaurant shrink rapidly

◇ Changing social structure

- Reduction of population will bring further restaurant market shrink
- Reduction of population will also bring labor shortage because restaurant industry is a labor intensive service

Management Strategy

-How to maximize add-value?-

■ The concept of management strategy



$$\text{Productivity} = \frac{\text{Add Value}}{\text{Labor Input}}$$

→ Our main focus
for management strategy

$$\text{Productivity} = \frac{\text{Add Value}}{\text{Labor Input}}$$

→ Our main focus
for service engineering

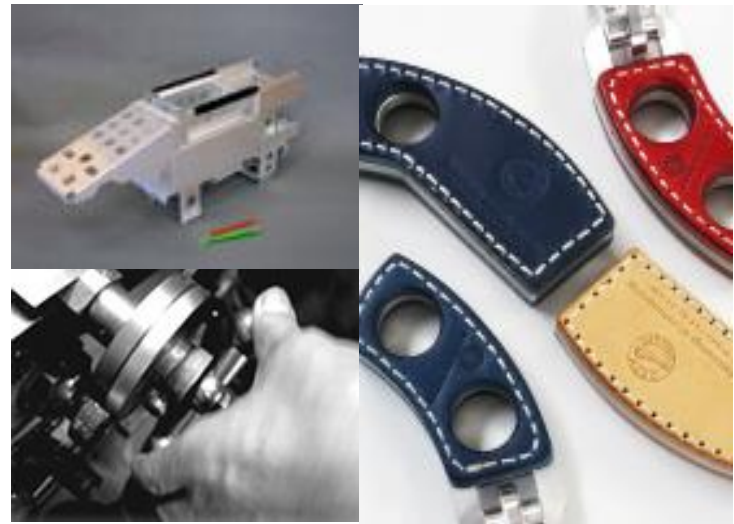
How to increase add value?

- not high price, but new value will increase add value
- create and offer new style Japanese cuisine for customer
- Craftsman-based production, but realize reasonable price

■ Combination of contents -a way to create new value-



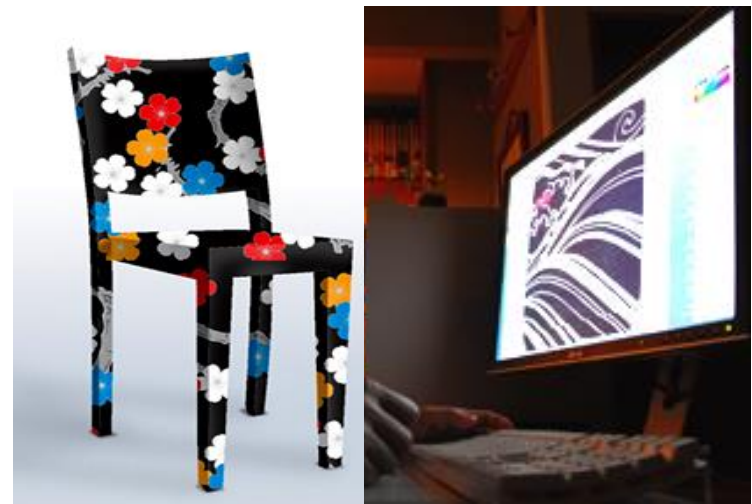
Nishijin textile and Italian Bag



Iron plate and Stationary



Event and Tea Ceremony



Yuzen textile CG technology

■ Combination of restaurant and culture -creating new value for customers-

◇ General trend — Simplification

- In general, restaurant simplify food and service to improve productivity

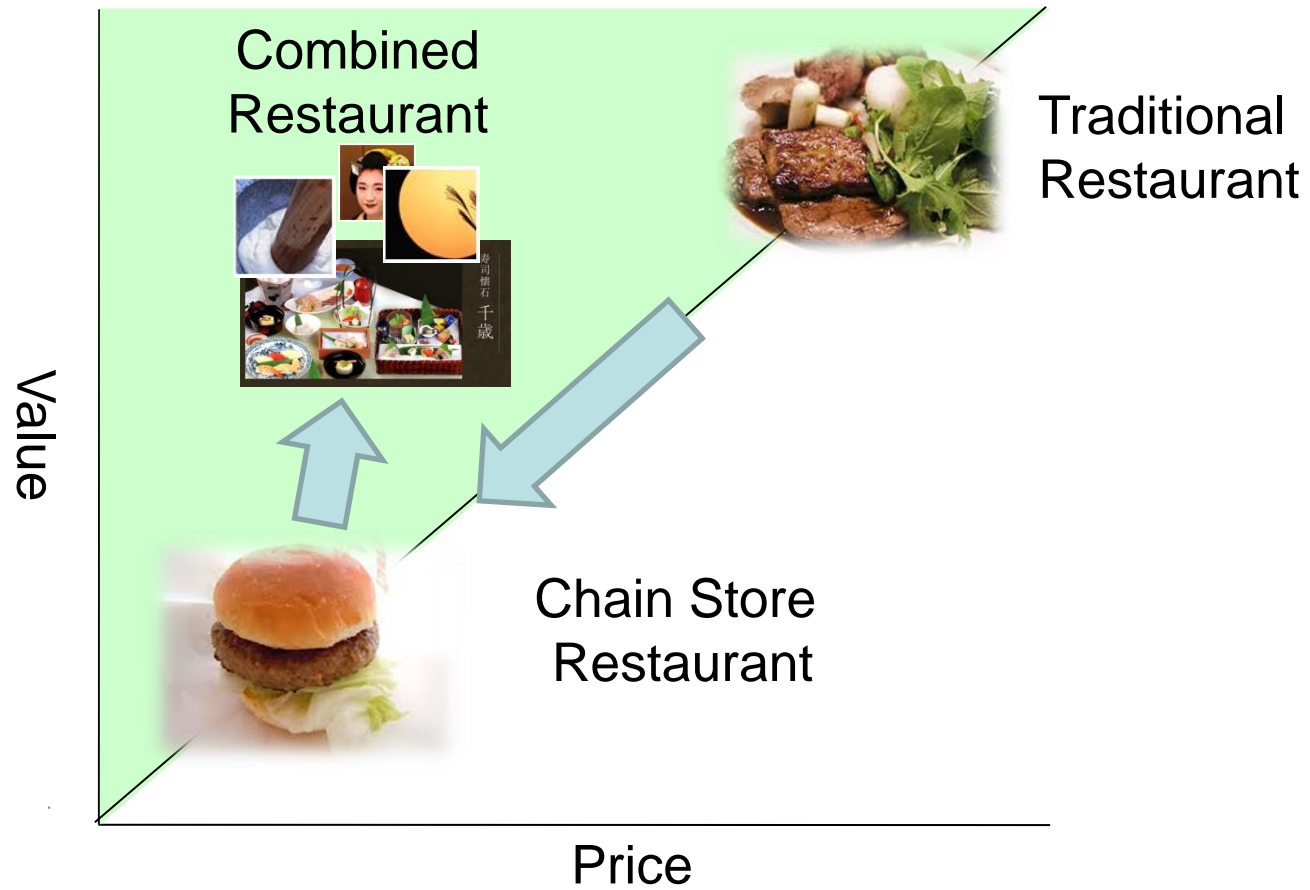
◇ Our way — Combination

- Our company try to combine restaurant and Japanese culture to create new value and improve productivity



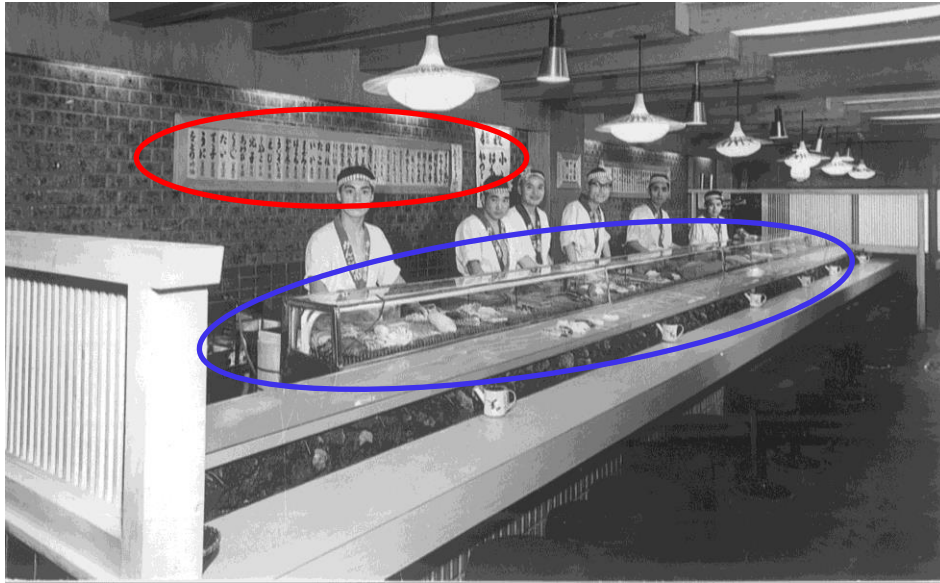
Restaurant and culture

■ How to differentiate from competitor?



■ Combination of food “Sushi and Kaiseki”

-how to create new style Japanese restaurant? 50 years ago-



Combine sushi and Japanese traditional cuisine



Combine Sushi and Retail Business

Introduce big showcase to show
Ingredients to customers

Indicate fixed prices to customers
(Sushi was closed price before)

■ Combination of craftsman and central kitchen -how to realize high value and reasonable price-

In the restaurant industry, which involves both manufacturing and sales elements, the optimization of procedures is crucial in improving productivity. Production procedures need to be optimized in both hardware and software.



■ Combination of restaurant category

- How to minimize break even point? -



1st floor is better location for restaurant,
Rent cost of 1st and top floor is high
Rent cost of middle floor is low
→ Lease whole building for cost leveling
Some restaurant category are required
to operate building as restaurants

Investment cost for Japanese restaurant
is high because of construction and
decoration work
→ Combines self investment and landlord
investment to minimize cost
High revenue per square meter is
required to call in landlord investment
∴ Lease cost is commission fee

■ Combination of Japanese style restaurants -how to get wide range of customer-

Sushi



Japanese restaurant



Fine restaurant “Ryotei”



Japanese noodle



Casual restaurant



Okinawa Cuisine



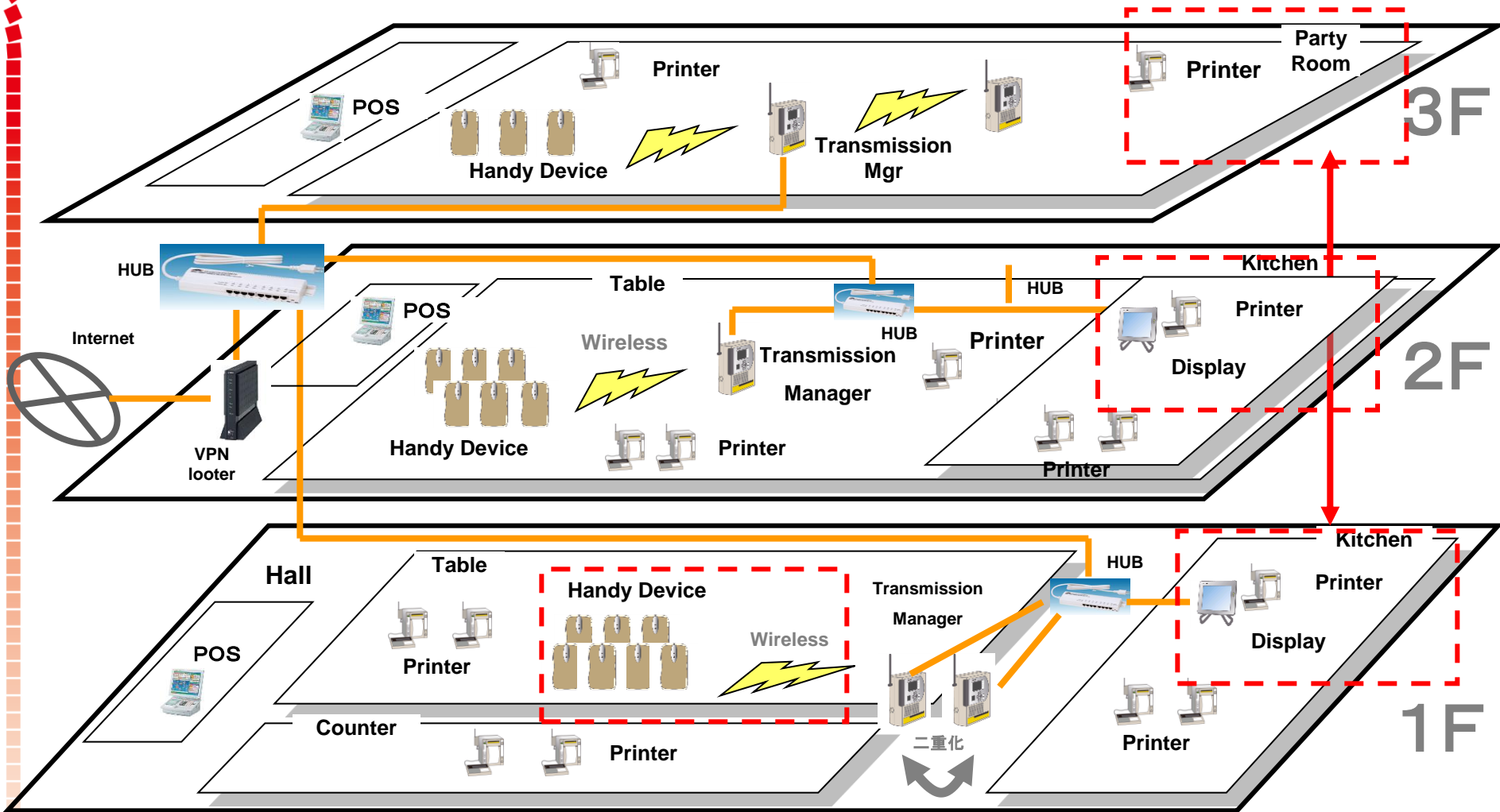


Figure: structure of POS System

■ Combination of restaurant category

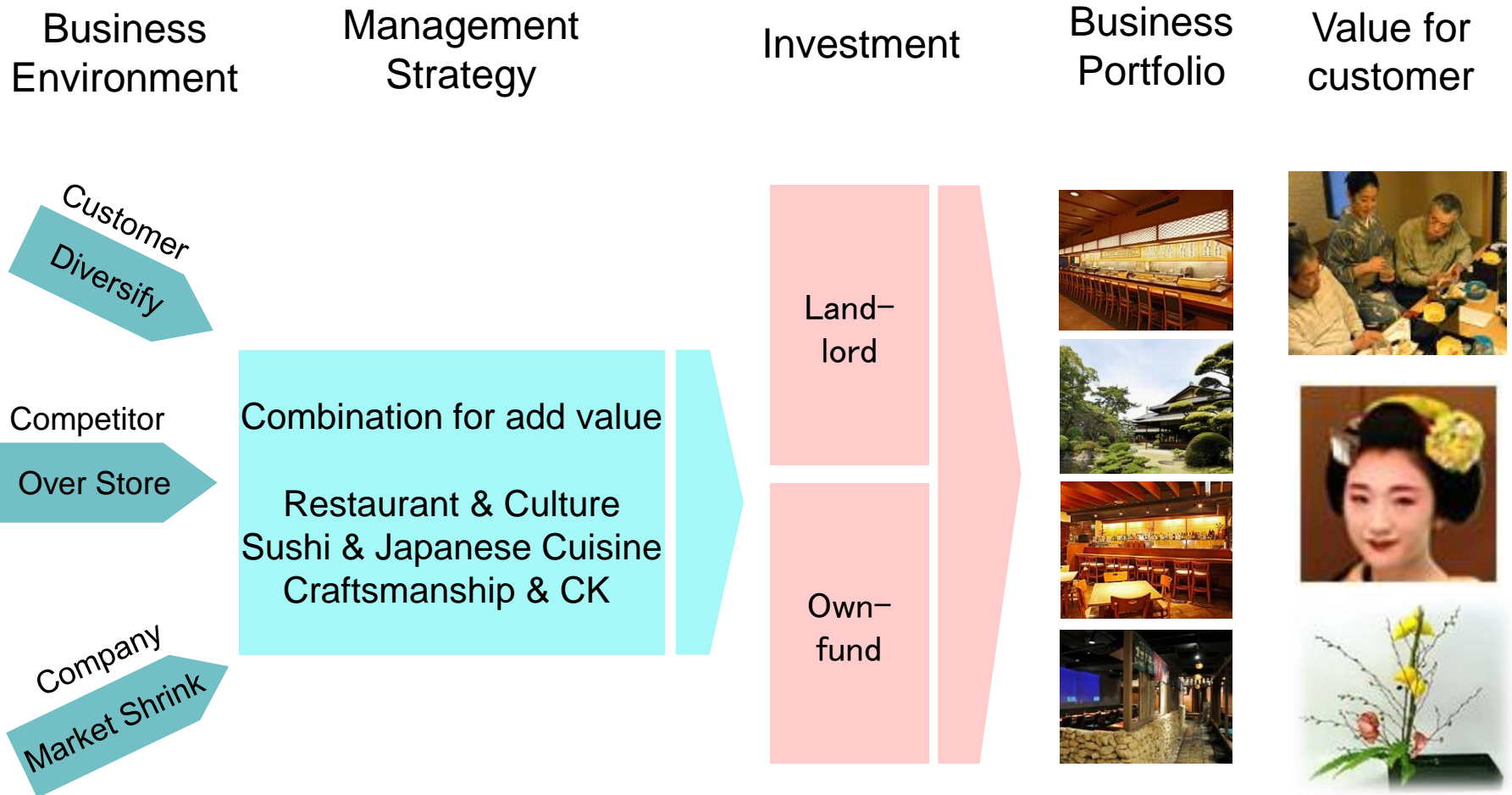
- How to minimize company risk ? -

In order to accommodate some characteristic of the company's business, our portfolio consists of a mixture of businesses.

- Seasonal fluctuations are significant (summer 1 : winter 1.5) → highly volatile business
- Main ingredient is fish → cost ratio of raw materials is high, and it is difficult to secure a stable supply
- Complex facilities + prime locations → ratio of fixed cost is high

	Japanese Cuisine	Tonkatsu (Fried	Tofu Bean Curd	Japanese noodle	Okinawa Cuisine
Seasonal Fluctuation	H(winter) L(summer)	constant	constant	constant	L(winter) H(summer)
Ingredients	Fish Expansive instable	Pork Not so expensive	Bean Low Stable	Wheat Low Stable	Bean, Pork
Investment Cost	High	Low	Low	High	Low

■ Management strategy for add-value



Introduction of service engineering

How to realize efficiency?

■ The concept of service engineering



$$\text{Productivity} = \frac{\text{Add Value}}{\text{Labor Input}}$$

→ Our main focus
for management strategy

$$\text{Productivity} = \frac{\text{Add Value}}{\text{Labor Input}}$$

→ Our main focus
for service engineering

How to minimize labor input?

Characteristics of
service

Intangibly
Simultaneity
Heterogeneity
Perishability

Required technology

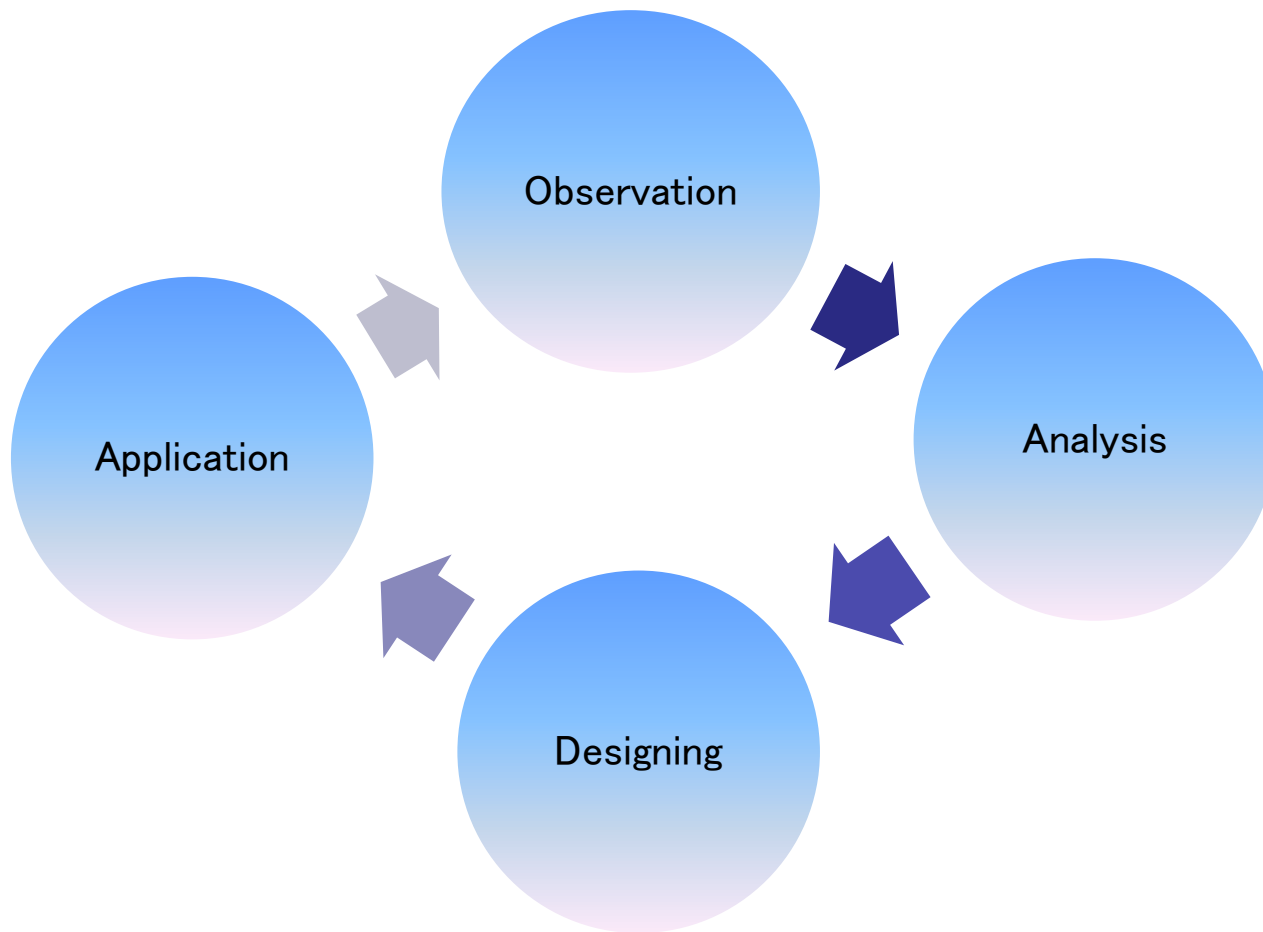
Visualization of service
Constant monitoring
Human oriented design
Support service field and staff

Service optimizing
loop

Observation
Analysis
Designing
Application

■ The concept of Service Engineering

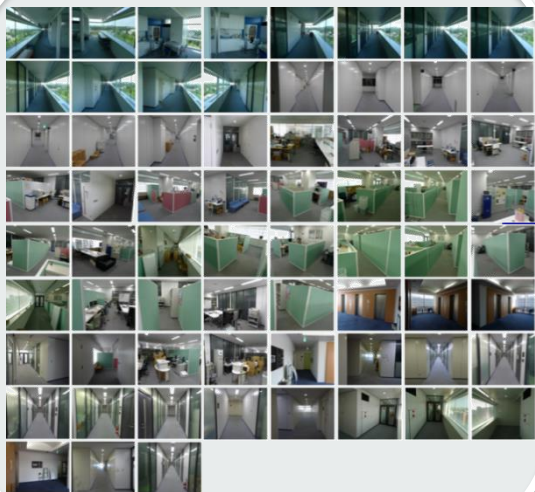
Center for Service Research introduce the concept of “service optimizing loop” to enhance productivity of service industry. CfSR develop new technologies to form the loop



Measurement of service operation at restaurant Using RFID device, sensors, and 3D-CG technologies

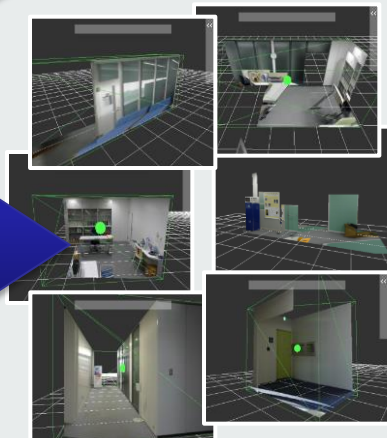
■ Concept of the system

Pictures of the restaurant

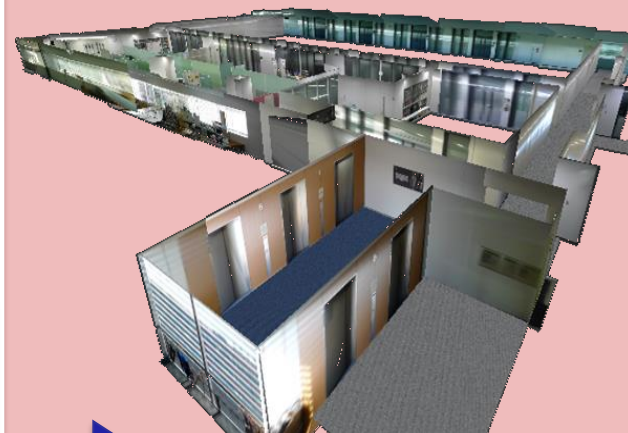


Picture

Create 3-D CG



3DCG

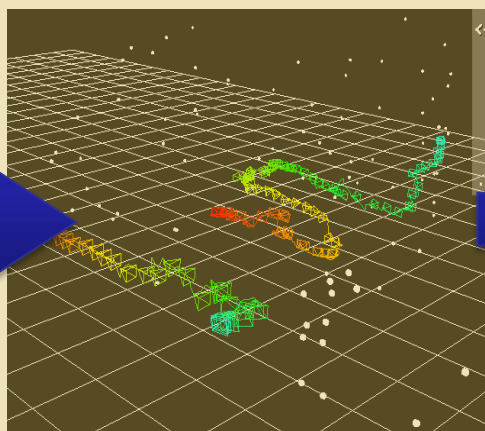


Replay



Measurement of
Operation by sensor module

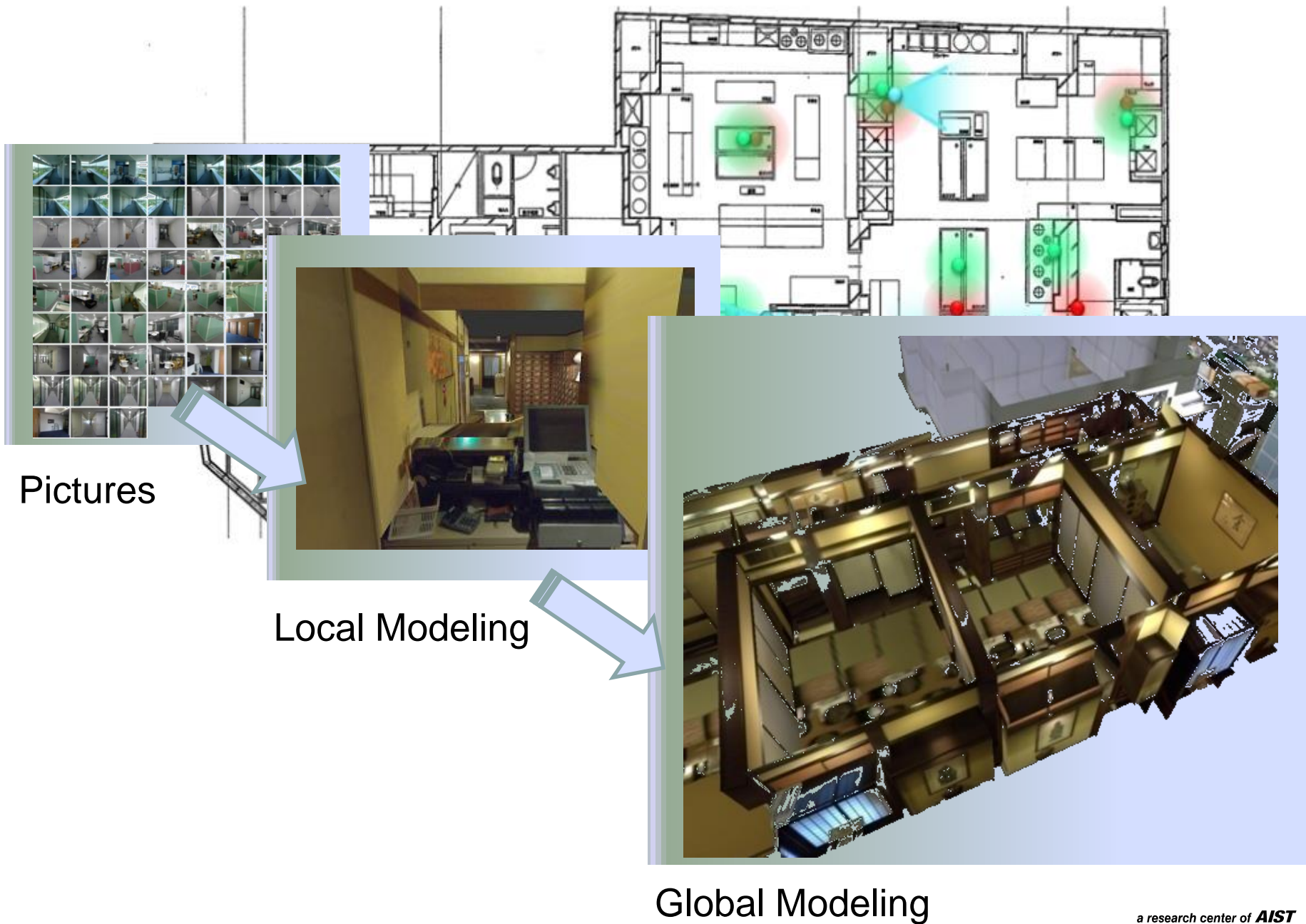
Data



Visualization

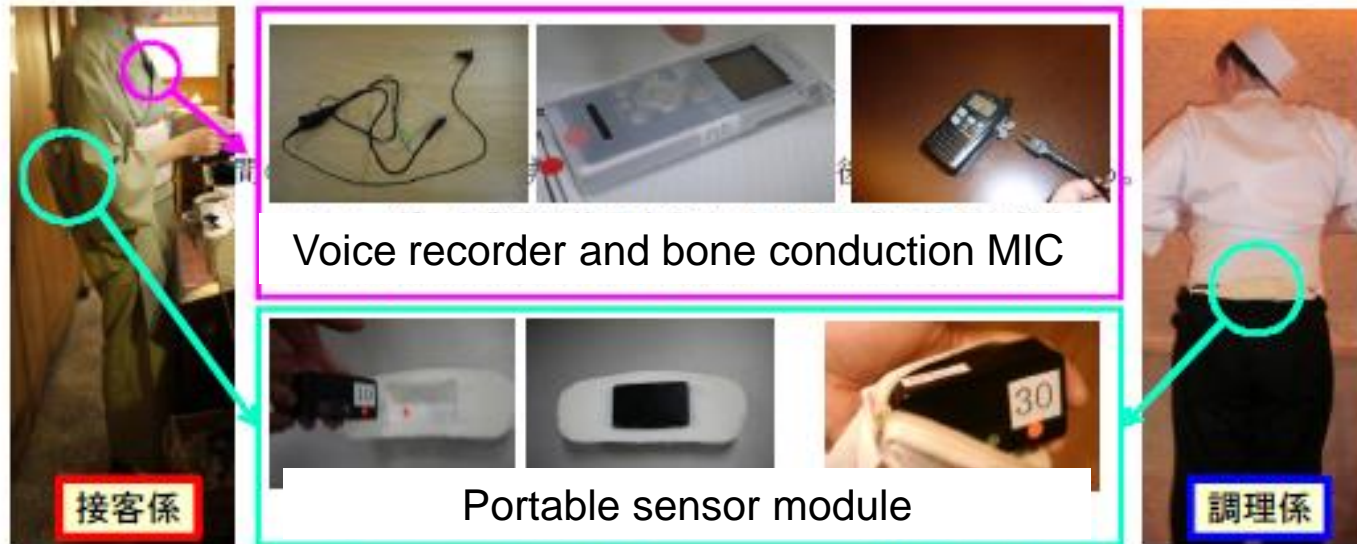
Operation

3-Dimension CG



■ Measurement of operation

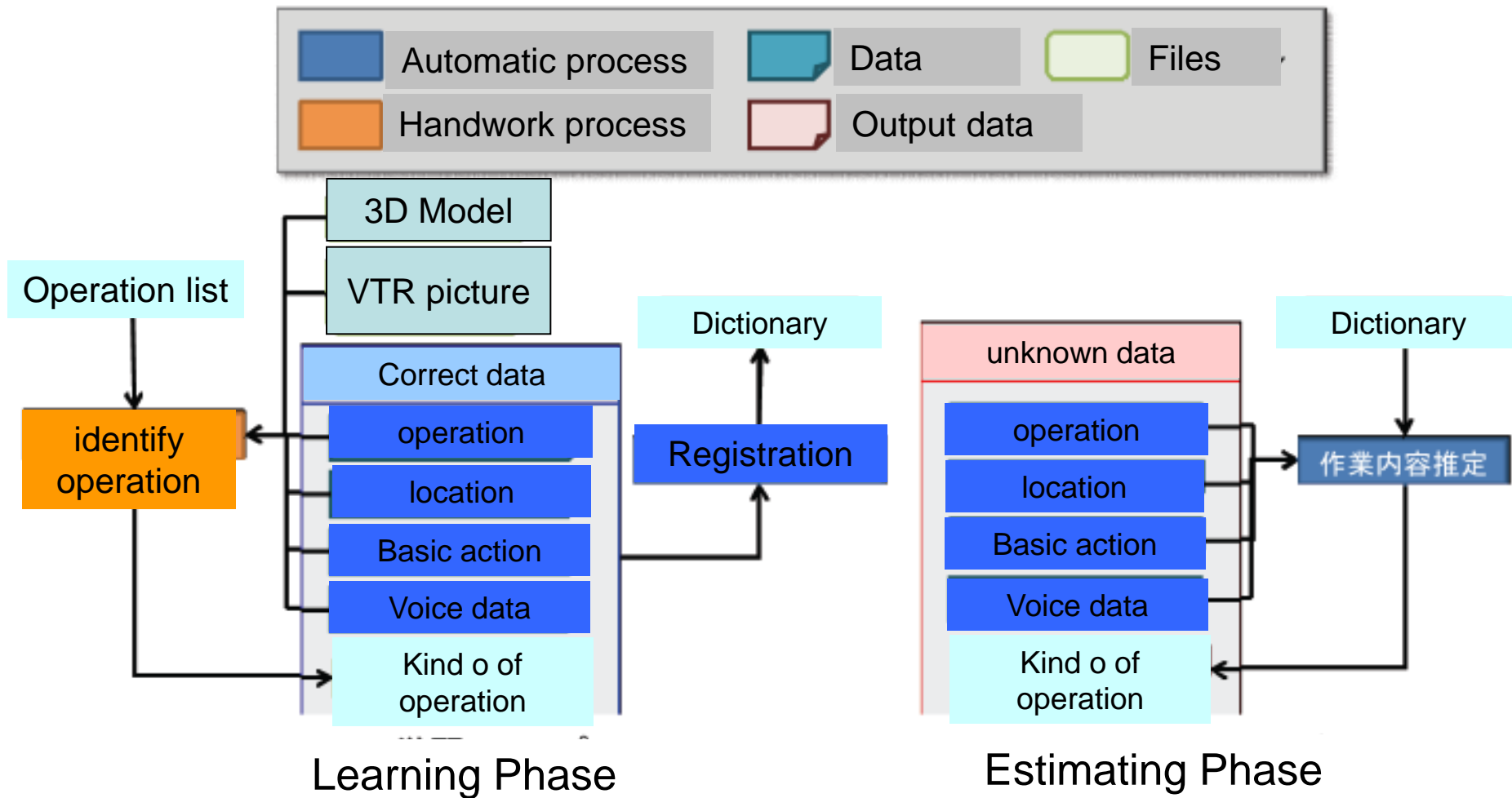
- Portable sensor module is developed to measure track of staffs
- The sensor usually transmit location information to the server
The server record data to replay transmission of the staff



- VTR is placed at kitchen and hall to measure operation of staffs



■ Visualizing operation



■ Display of the system

Indicate
Operation data

Indicate
POS data



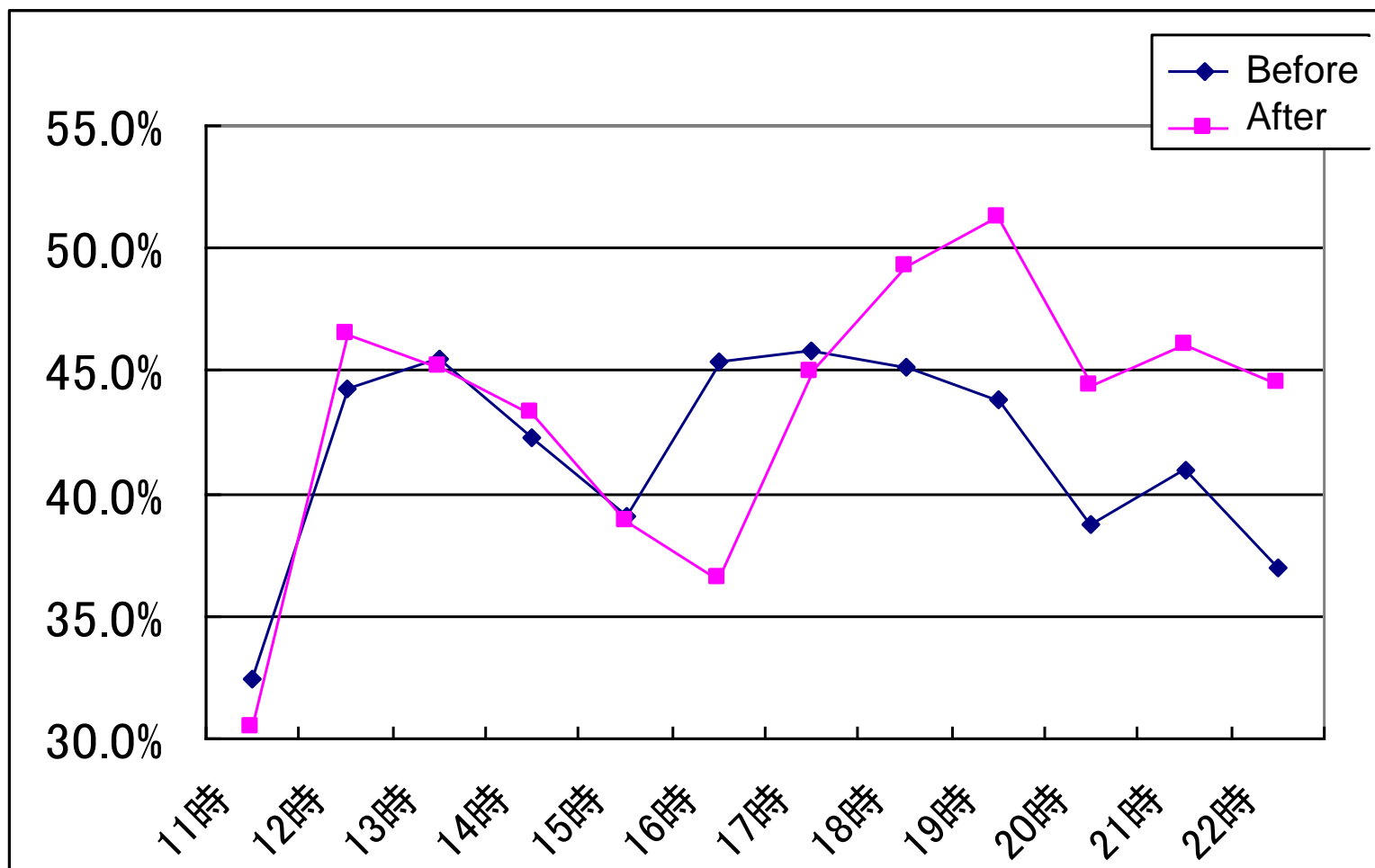
Indicate
VTR picture

Indicate time line
and operation

Control
And
Handling

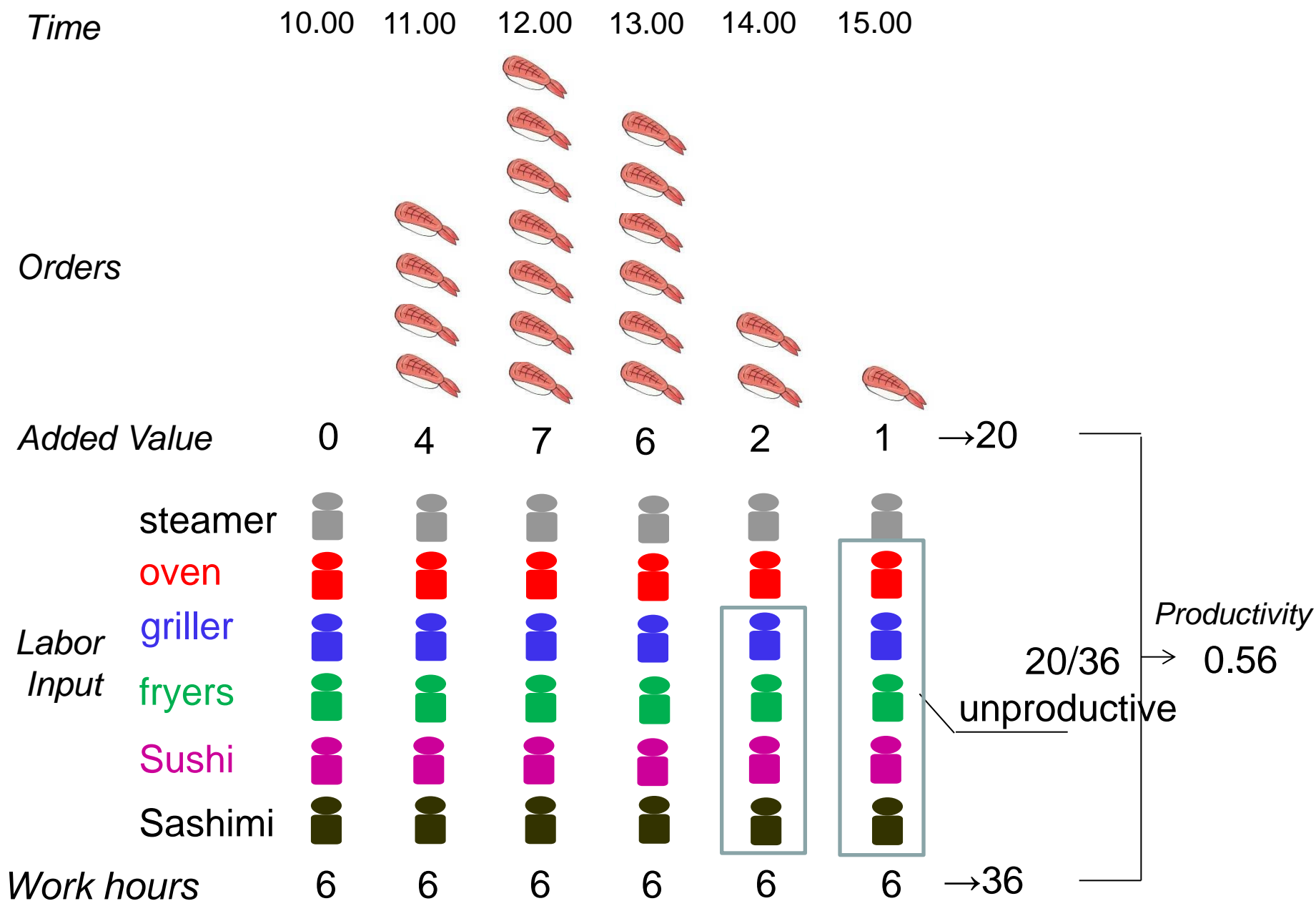
■ Results of the service operation improvement by QC circle

- The system introduce restaurant store
- QC circle try to increase performance using the system
- Results shows staff increase performance
they can grasp bottleneck of service operation by the system

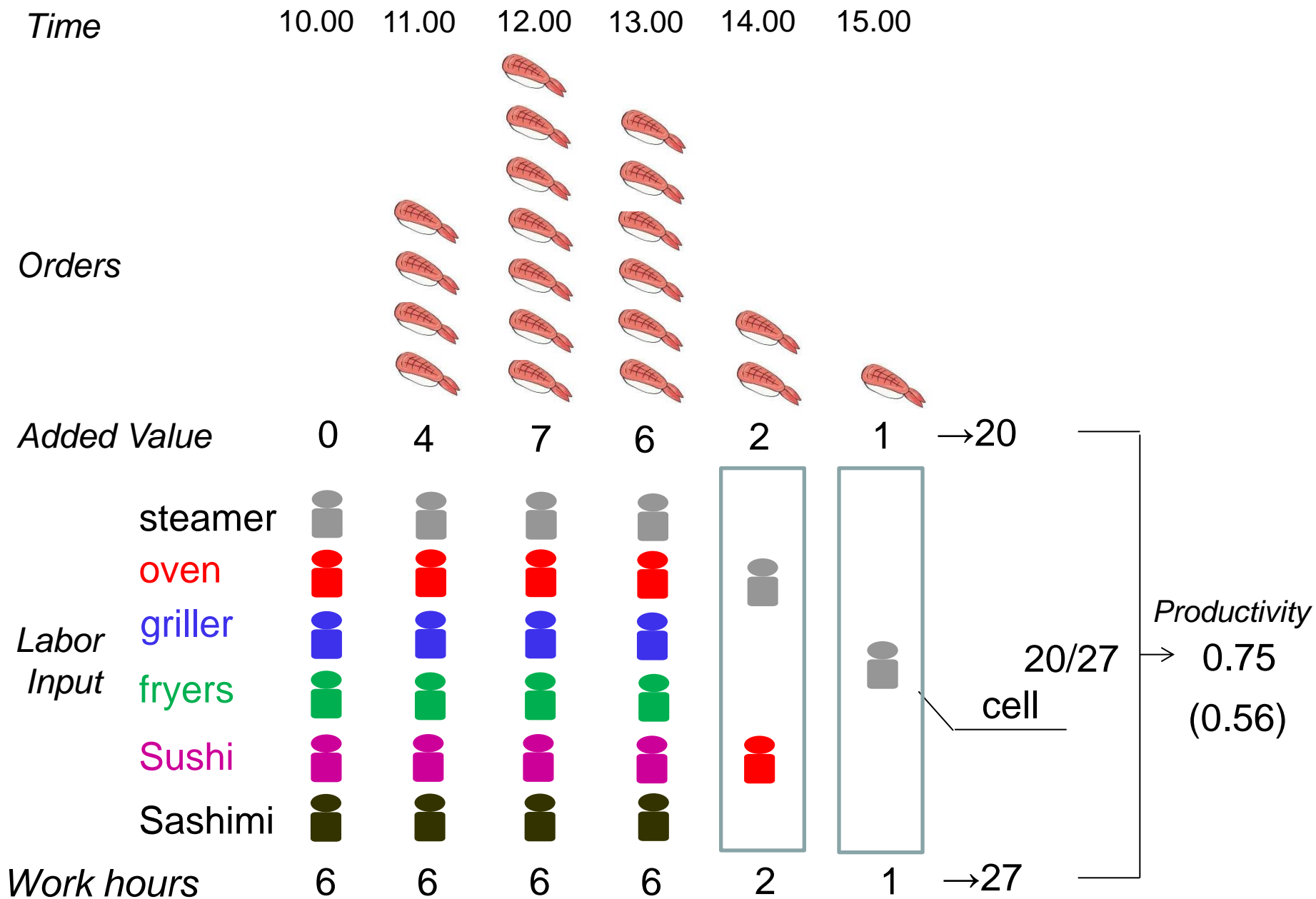


Improving Labor Productivity and Labor Elasticity Using simulation and introducing cell production system

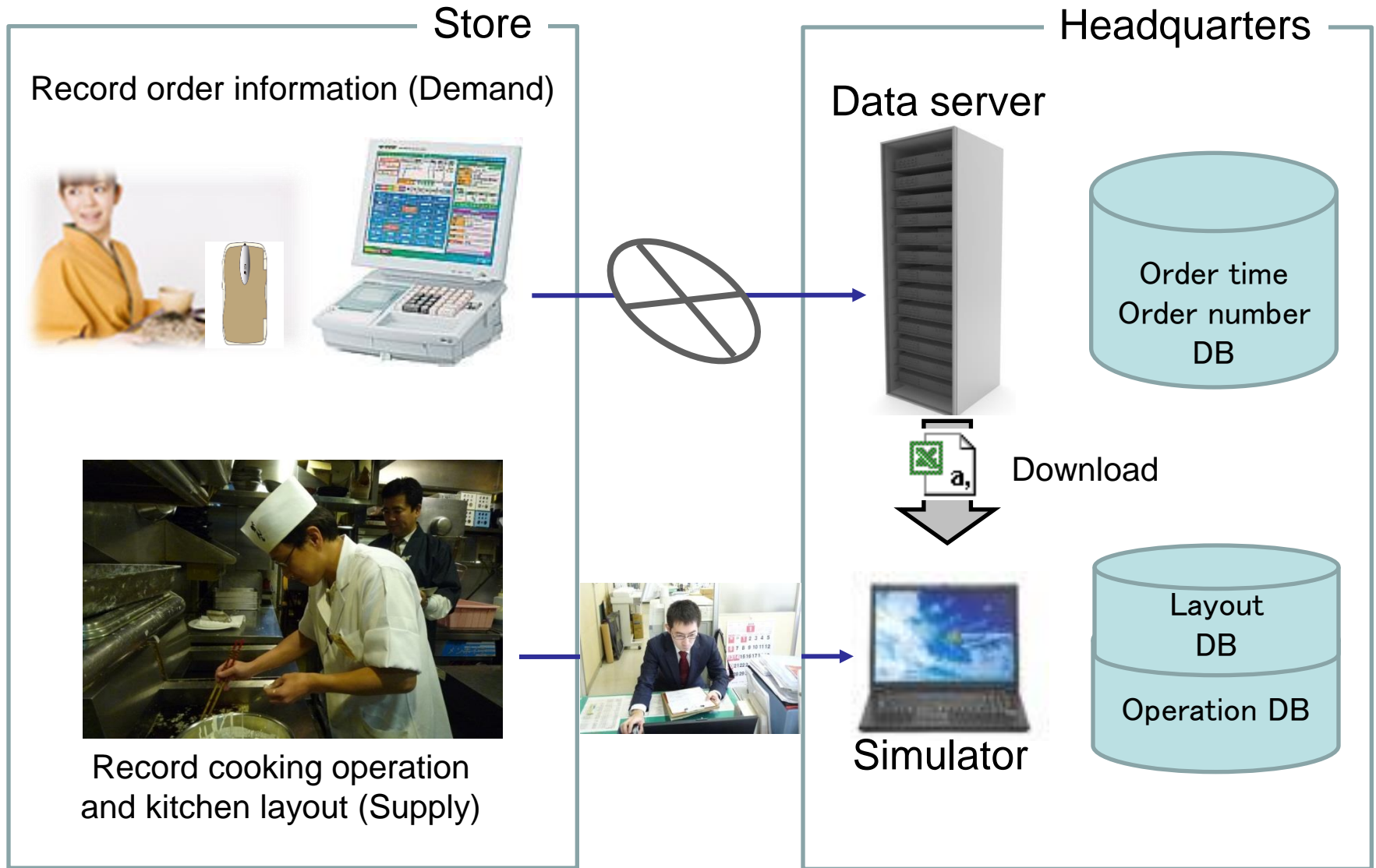
The problem of conventional production system



■ The Objective of introducing cell-production system



Structure of the system



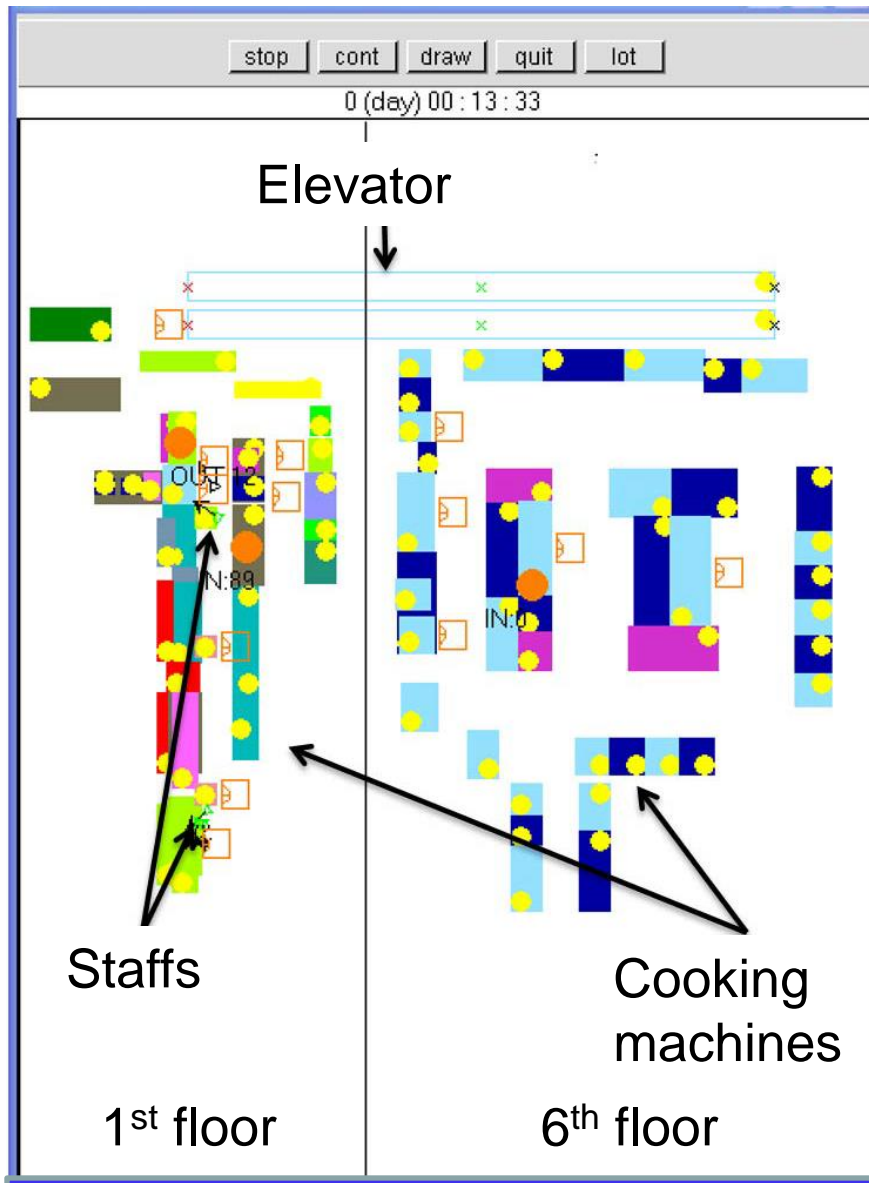
■ Database of cooking operation

商品名		お造り膳	Step Name	Machine Group Field	M 1	M 2	M 3
仕込			6901	PREP			12
洗浄				WASH			
調味				TASTE			
加熱	HEAT	Jオープン	6902	OVEN			
		ガスグリラー		GAS GRILLER			
		電子レンジ		MICROWAVE			
		スチームコンベクション		STEAM CONVEVTION			
		フライヤー		FRIER			100
		ガスコンロ		GAS STOVE			
		電磁コンロ		ELEC STOVE			
切断	CUT	造り（人）		SASHIMI			50
		寿司（人）		SUSHI			40
		寿司ロボット		SUSHI MAKER			
飲み物	DRINK	ビールサーバー		BEER SERVER			
		酒燗器		SAKE WARMER			
		ショットメジャー		SHOTMEASURER			
		ドリンク（人）		DRINK			
盛り付け			6903	SERVE			30
配膳調理			6904	DISHUP 1			20
配膳				DISHUP 2			15

■ Database of kitchen layout

Id (機器名称)	Xdim (中心)	Ydim (中心)	Xpos (大きさ)	Ypos (大きさ)	Xdir (向き)	Ydir (向き)
SUSHI-01	3.67125	3.67125	5.5	1.85625	0	1
SINK-01	12.375	3.7125	13.73625	1.85625	0	1
ICE-01	4.5	3.67125	22.5	1.85625	0	1
SINK-02	12.375	3.7125	31	1.85625	0	1
SINK-03	6.1875	3.3	35.74825	6.80625	-1	0
WARM-01	3.15975	3.15975	26.88675	5.94	0	1
OVEN-01	3.7125	2.92875	16.77225	11.83875	0	-1
IH-01	2.508	2.84625	20.6745	11.83875	0	-1
ICE-02	4	8.5	4.3	16.2525	1	0
NUDLE-01	3.135	4.785	6.0225	19.32975	1	0
RICE-01	3.135	3.135	1.485	20.02275	-1	0
SINK-04	4.95	3.3	6.72375	23.42175	1	0
IH-02	2.508	2.84625	6.8	27.3	1	0
WARM-02	6.31125	4.95	2.64	25.179	-1	0
CABIN-01	9.9	3.3	1.65	33.28875	-1	0
REFRI-01	9.9	4.95	5.775	33.28875	1	0
SHOW-01	9.9	5.3625	2.64	43.18875	-1	0
CABIN-02	9.9	2.97	6.765	43.18875	1	0
WASH-01	5.775	5.3625	-5.5605	55.38225	0	-1
TABLE-01	8.25	4.95	1.3695	55.539	0	-1

Layout planning by using the system

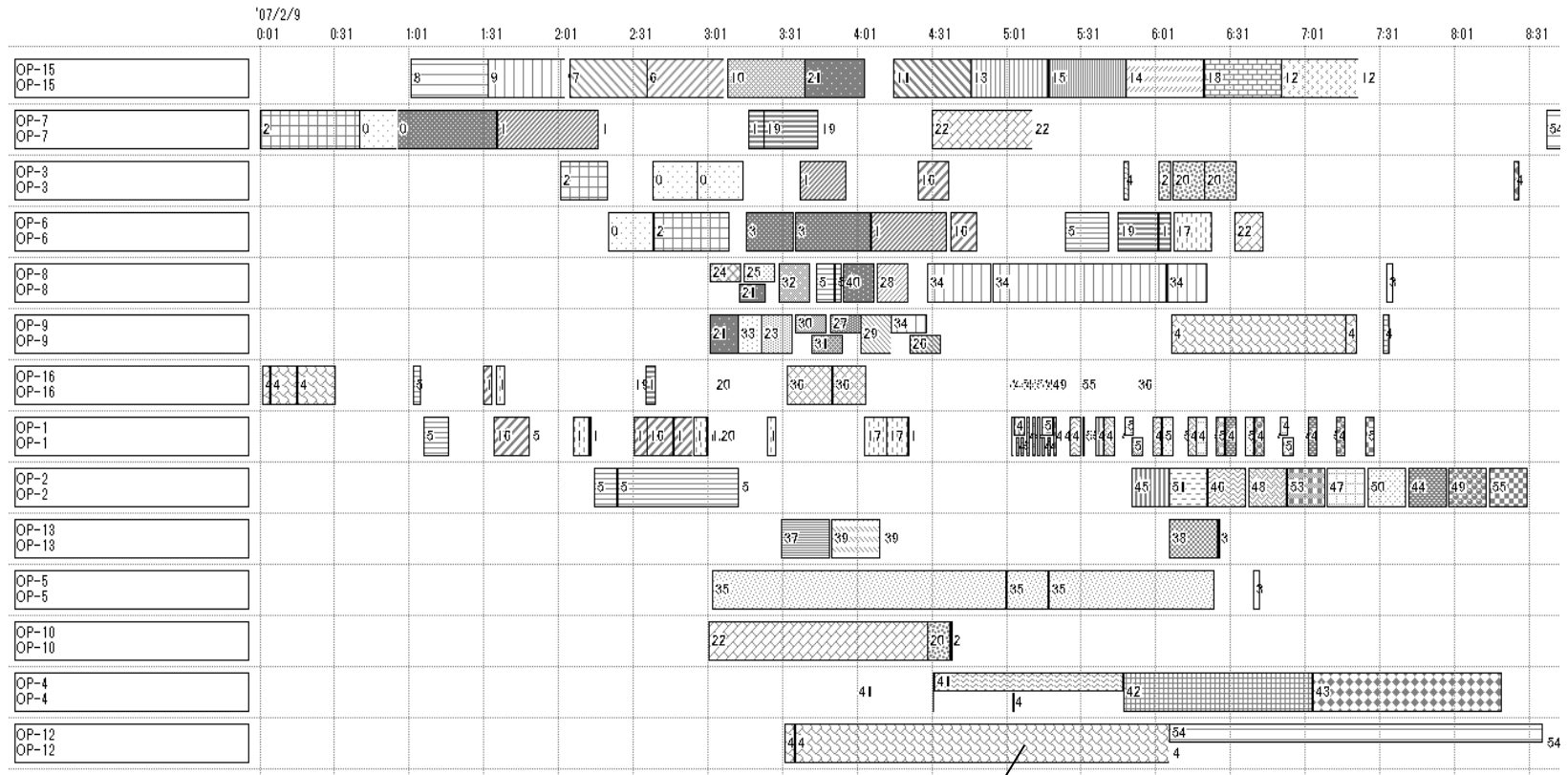


- Restaurant often plans kitchen layout based on experience of planning staff or matured chef
- Even skillful chef or planner experience less than 1,000 restaurants planning
 - Can they realize optimal layout based on experience only?
- They can evaluate layout planning and discuss optimal kitchen layout before construction or renovation
 - They can improve kitchen planning using both experience and system

■ shift planning by using the system

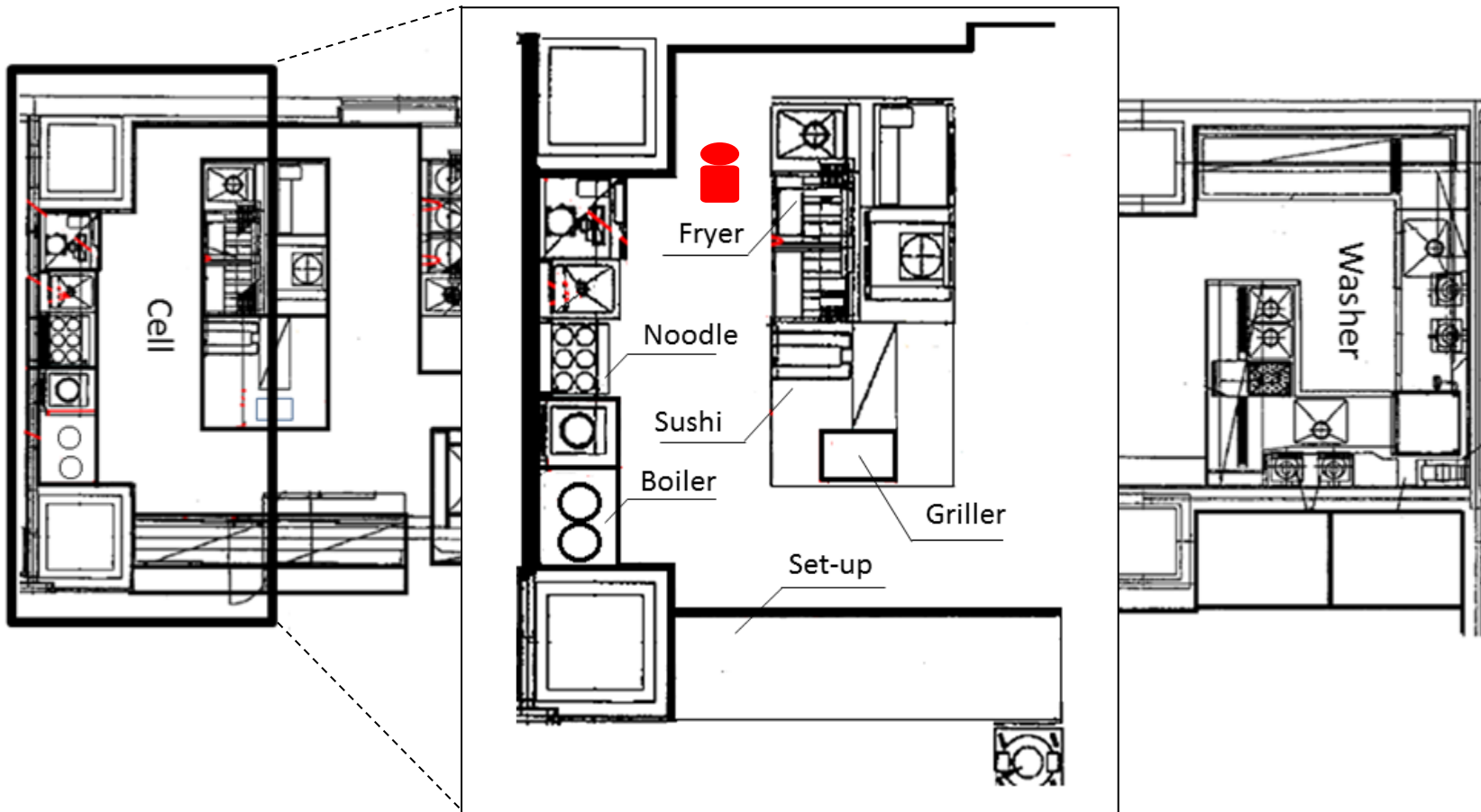
Time→

Cooking position→



Matters of operation

■ Introducing cell production system

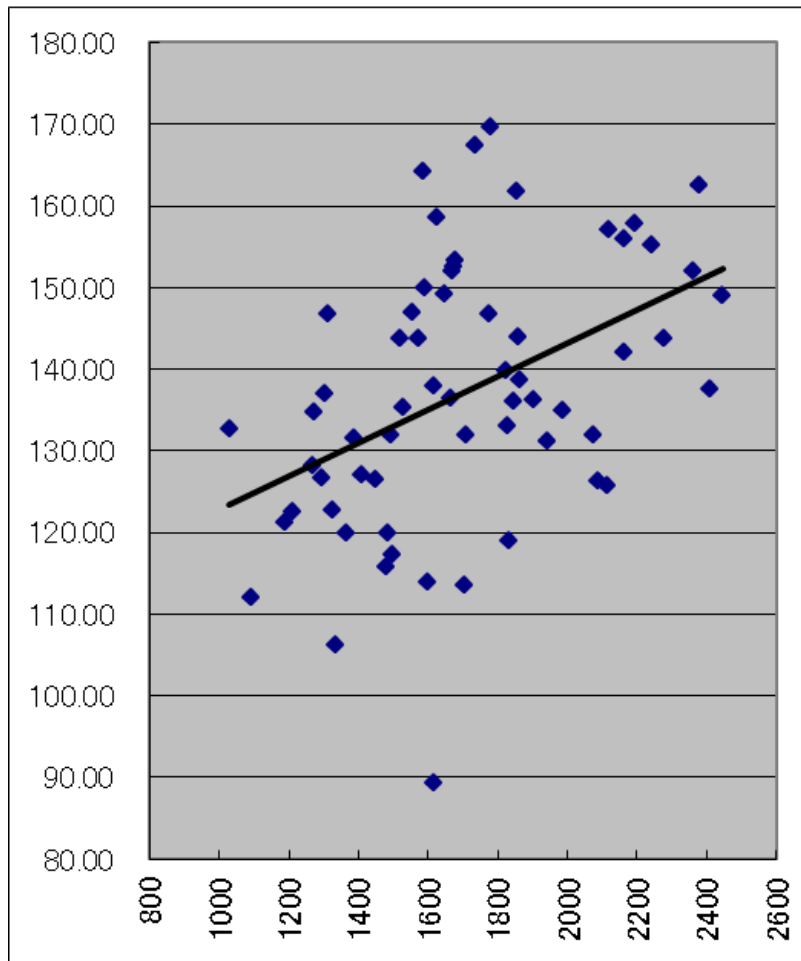


When restaurant order is simple, a chef cooks various kind of dishes at a cell cooking position

The production system work well because of multiproduct restaurant; they hire cross trained chef

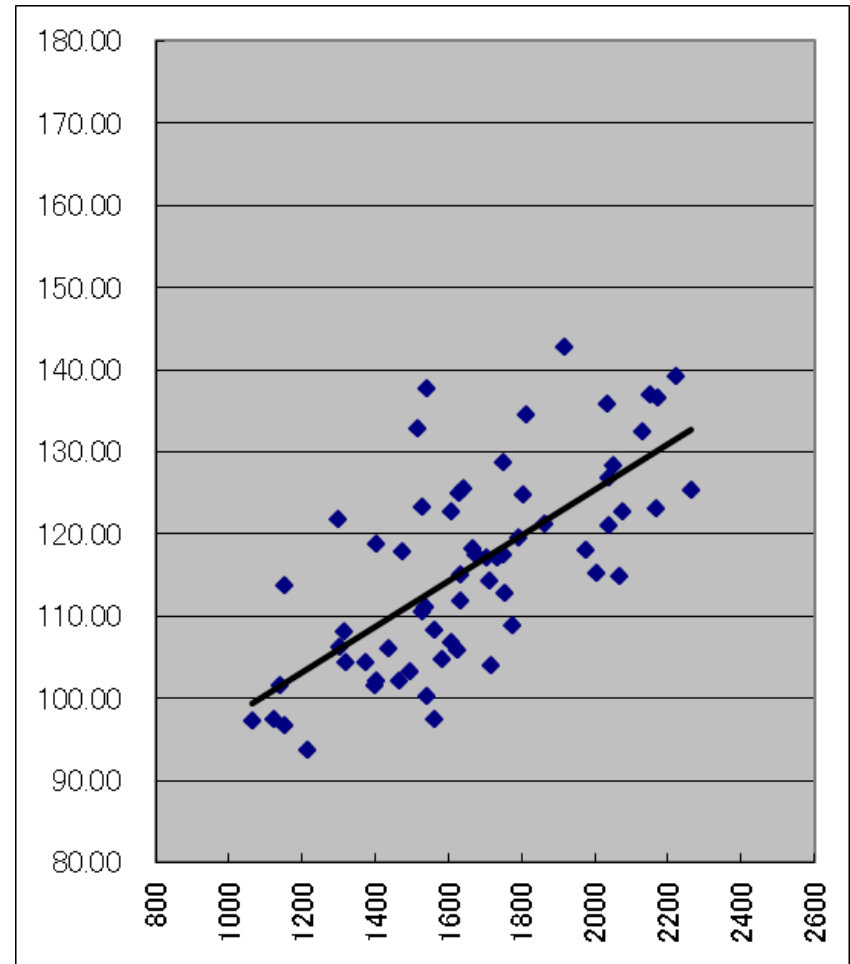
■ Point diagram between revenue and work hour

Work Hours



Revenue

Fig: Line production



Revenue

Fig: Cell Production

■ Statistical results

		Line Production	Cell Production
Revenue	@	1,707,000 Yen/Day	1,661,000 Yen/Day
	SD	347,000 Yen	304,000 yen
Work Hours	@	137.7h/Day	116.0h/Day
	SD	16.2 Hour	12.2 Hour
Correlation		0.44	0.69

Practical service optimization loop

Innovation of service
Strategy / Top Executive

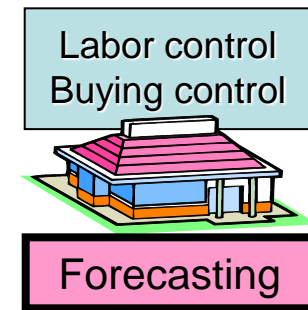
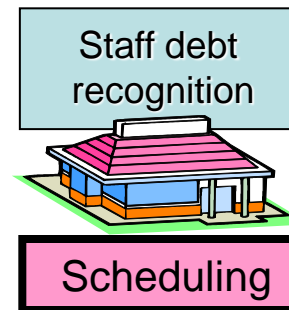
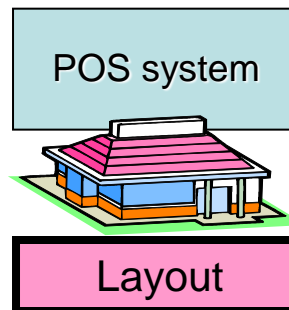
Redesign service contents
Tactics / manager

Optimize demand and supply
Operation / staffs

Labor scheduling
Purchase Management

Service designing
Menu designing

Investment
Business model



External Data

Head quarter



Bayesian
Network

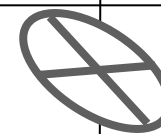
Statistical
Analysis

Simulation

Qualitative
analysis



Accounts



Stores

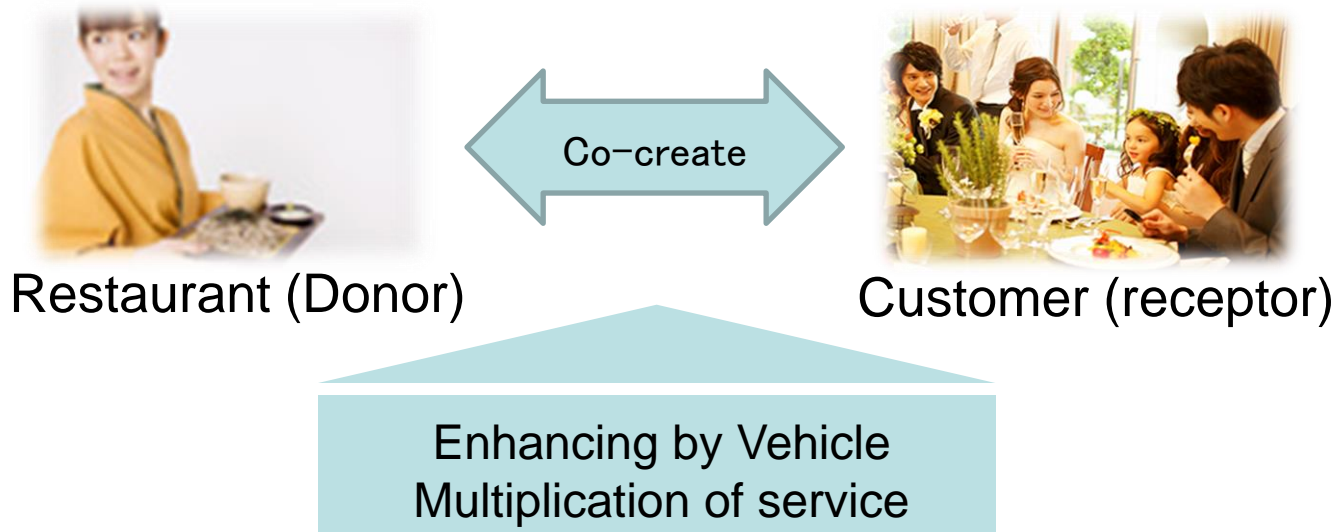
■ Conclusions

◇ Service innovation

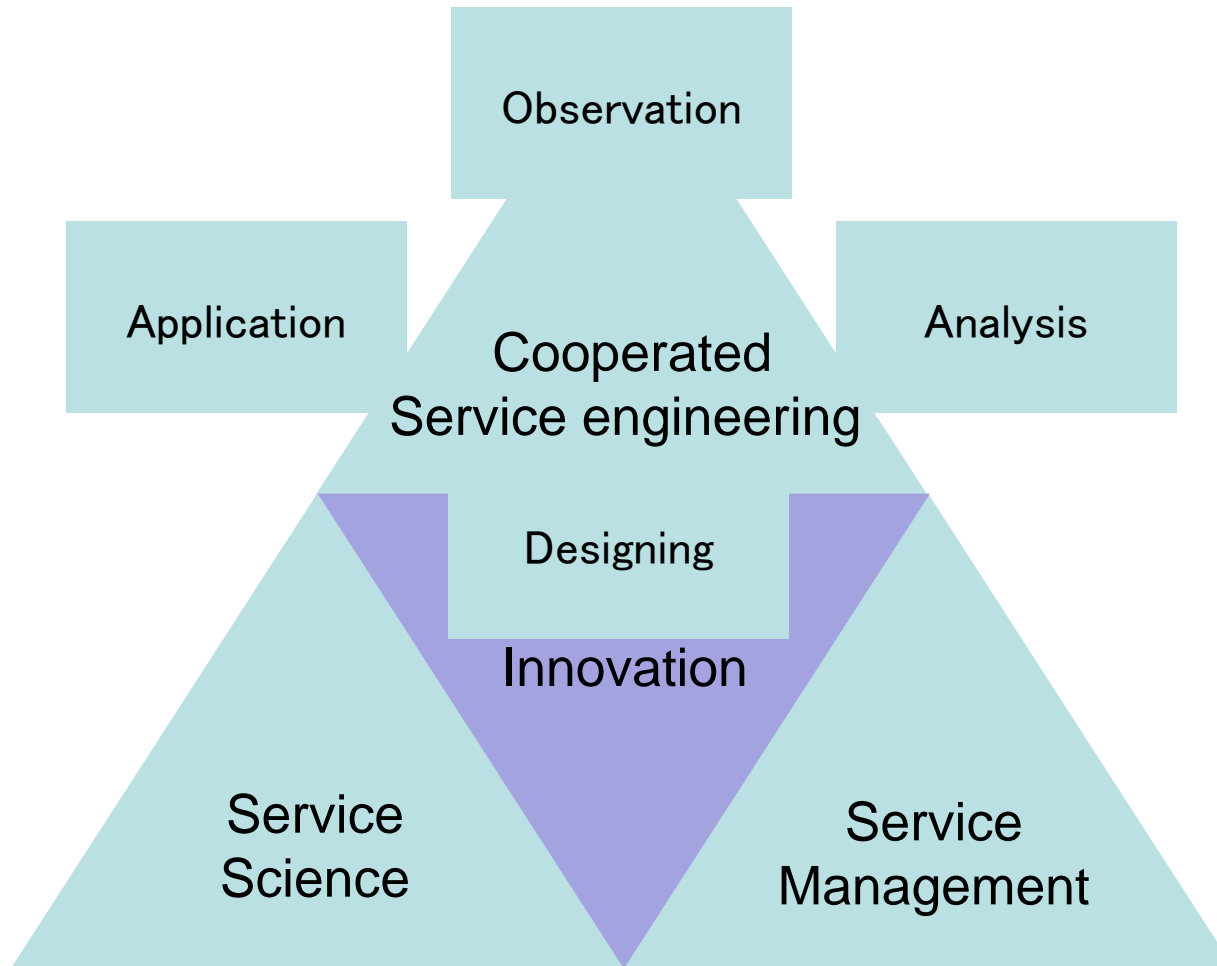
$$\text{Productivity} = \frac{\text{Add Value}}{\text{Labor Input}}$$

Management Strategy
Service Engineering

◇ Combination of value and efficiency



■ Synthesis and cooperation of service study



Thank you for your attention