

[Field Research]

# Study on the Measurement of Management Performance based on BSC: Examining Japanese Food Manufacturers

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## Abstract

**Purpose** – This study attempts to measure the management performance of a food manufacturer using the BSC as one of the main business management techniques used to achieve the vision of a corporation.

**Research design, data, methodology** - The measurement of business performance of a Japanese food manufacturer was conducted from four perspectives of BSC. Matsui (2005) developed the ‘Cross-analysis chart’.

**Results** - First, there were many cases where a minor wastage of raw materials was related to increasing costs. Second, the food manufacturer should try to recover the investment cost through significantly increasing the rate of the facility’s operations. Third, reducing personnel expenses could be an important issue in labor-intensive manufacturing. Fourth, customer management was very important in the food manufacturing business. Finally, the food manufacturer should actively consider proposals influencing the food culture to secure high profits in the future.

**Conclusions** - There were many limitations in applying these results to Korean food manufacturers, as this study applied to and analyzed the results in the context of the Japanese food manufacturer

**Keywords** : Balanced Scorecard (BSC), Measurement of Management Performance, Food Manufacturer, SWOT Analysis

JEL Classifications : M11, M16, M31.

## 1. Introduction

The basic prerequisite of the corporation's existence is to set up and practice its own vision or strategy clearly in the current corporate management under a rapid environmental change. The vision can be realized when the strategy is established based on the differential

product, service, and business model, the detailed plan for effective actions is consistently planned, and personnel and organization are shared and managed.

For this, the corporation should make members to understand the basic philosophy or frame of the business management, and the most important matter among the whole management, and further have the capability needed to plan, perform, manage, and modify the strategy.

Therefore, the manager needs the overall frame which can present the vision and strategy as the performance measure with the consistency, namely the performance evaluation system to evaluate objectively the whole corporation, an unit of the operation department, and individual performance (Drucker, 1998).

However, many Western corporations had been interested in evaluating the performance by using only the financial measurement index such as the net profit during the term, rate of return to the investment, and profit rate of net worth in the performance evaluation system. The performance evaluation model based on this financial measurement index had been studied in various ways with the situation theory developed in the late 1970s as the theoretical background (Ittner and Larcker, 1998).

Many corporations had still adopted the financial measurement index because it was easy to understand and get the related information, and familiar concept to organization's members. But, many weaknesses had been pointed out such that this financial measurement index was not related to the strategy of a corporation, very summarized index, relatively past real information, and short of a role as the index of the future competitiveness because it emphasized only ex post facto result (Eccles, 1991).

Kaplan and Norton criticized the traditional performance evaluation system used only financial measurement indexes and suggested BSC composed of a set of measurement indexes which made managers have the comprehensive viewpoint as the alternative (Kaplan and Norton, 1992, 1993, 1996a, 1996b, 2000, 2004, 2008).

BSC is the group of balanced indexes carefully chosen derived from visions and strategies of corporations, that is the business management technique used when managers provided visions and strategies of corporation and arouse a change (Javad, et al., 2011; Kittiya and James, 2009 ; Lokanandha, 2007 ; Paul, 2005). The current BSC was in the limelight as an instrument to encourage the strategic thought of a manager and create the performance culture, and the management control system which supported the strategy practice. It was reported that 64% 1, 000 corporations selected by American Fortune had already adopted or under the consideration (Choi et al., 2006).

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The distribution of BSC to leading public and private corporations by the industry had been on a rapidly constant rise since it was introduced as the new technique for the restructuring and management innovation of Korean corporation right after IMF in Korea. Especially, it was largely used the index development methodology for the performance evaluation of an organization in Korean corporations (BSC Research Group, 2006).

In this situation, this study tended to measure the management performance of food manufacturers using BSC in the spotlight as one of business management techniques to achieve the vision of a corporation. To achieve the purpose of this study, the concept and four perspectives of BSC was reviewed in Chapter 2. The environment and industry analysis on food manufacturers which BSC would be applied were conducted in chapter 3. the management performance of Japanese food manufacturers was measured using the cross-tabulations chart of BSC by developed Matsui in chapter 4. At last, prescriptions for successful food manufacturers were suggested based on BSC analytical results in chapter 5.

## 2. Concepts and 4 perspectives of BSC

### 2.1. Concepts of BSC

BSC is the business management techniques created by professor Kaplan and Norton (1992) in Harvard University in America in 1992. Kaplan and Norton described strengths of BSC as follows.

First, BSC provided managers the method to design and install the measuring instrument needed to sail the success in the future competition. Present organizations needed absolutely the accurate understanding about their goals and plans to achieve their goals because competed in a complex environment.

Second, BSC changed from missions and strategies to the form called a group of comprehensive measurement indexes which provided as the frame for strategic measurement and management system.

Third, corporations could trace financial results while monitoring both the establishment of the capacity needed for the future development and the progress of acquiring intangible assets at the same time by using BSC.

### 2.2. Four Perspectives of BSC

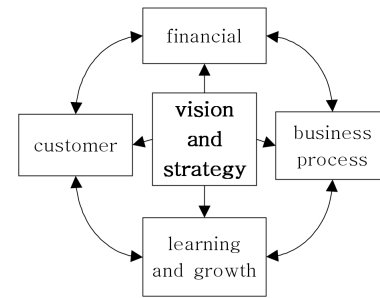
BSC supplements the measurement index related to the driving force which created the future performance by adding to the financial measurement index related to the past performance. Goals and measurements of the BSC are deducted from visions and strategies of an organization.

This goal and measurement index not only prospects the performance of an organization but also provides a frame to BSC from the four perspectives (financial, customers, internal business process, and learning and development perspective) as shown in <Fig. 1> (Kaplan, 2009, 2010).

In addition to these perspectives, BSC reflects that there is a balance between long-term and short goals, financial and non-financial

measurement index, leading and following index, and external and internal perspective regarding the performance.

First, the financial perspective is how a corporation show stock holders to succeed financially. Second, the customer's perspective is how a corporation show customers to achieve the vision. Third, the perspective of the internal business process is what kind of business a corporation should surpass others in to satisfy stockholders and customers. Fourth, the perspective of learning and growth is what kind of method a corporation need to develop the changing and improving capacity to achieve the vision of a corporation.



<Figure 1> Four Perspectives of BSC

## 3. Environmental Analysis and Problems of Food Industry

Food industry is the industry in which the production activity is conducted as one of the life-related industry composed of the national economy and results of this production activity influences many general economic indexes such as economic development, employment, price, national income and expenditure, and investment.

### 3.1. Scope of Food Industry

The food is any substance consumed to provide nutritional support for the body. It is usually of plant or animal origin, and contains essential nutrients, such as carbohydrates, fats, proteins, vitamins, or minerals.

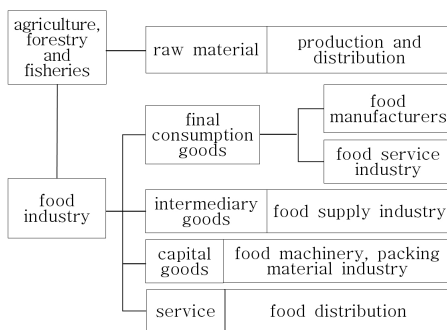
The food was defined as all the food products except medicine and medical supplies in Food Sanitation Act. According to Food Industry Promotion Act pushed ahead by the Ministry of Agriculture and Forestry, food means all the food manufactured, processed, and cooked with agricultural products as raw materials or materials. But, it excludes what is taken as medicine.

The food industry generally means only food manufacturing or processing industry and sometimes includes food distribution and food service industry. Specifically, food industry is defined as a collectivity of businesses which conduct the economic action each food distribution stage or as a collectivity of businesses which go with all the economic actions conducted through complex distribution channels such as the production, collection, process, packing, and sales of agricultural and marine products, the first product produced as the edible (Kim, 2009).

The food manufacturing sometimes means a general term of businesses which conducted the economic action carried out at the distribution stage of agricultural and fishery food or includes collection brokerage of agricultural raw materials, transportation storage, food manufacturing machine or container packing manufacturing, food service industry, and food wholesale and retail business as well as food manufacturing.

The Ministry of Agricultural and Forestry defined the food industry as all the economic activities made at the stage of processing, manufacturing, storage, transportation, and consumption of food stuffs. According to Food Industry Promotion Act pushed ahead by the Ministry of Agriculture and Forestry, it was defined as all the industries which included food processing, manufacturing, storage, distribution, cook, and consumption. Food material industry was defined as the industry which produced food materials with agricultural products or provided agricultural products or food materials.

The scope of the food industry as the policy object is somewhat comprehensive as shown in <Figure 2> and includes food manufacturing, food service, food supplies, food machine, packing material industry, and food distribution (Kim, 2009).



<Figure 2> Scope of Food Industry

### 3.2. Environmental Analysis on Food Industry

#### 3.2.1. Macro-environment

Characteristics of the macro-environment which surrounded Korean food industry were summarized as follows (Shin, 2009).

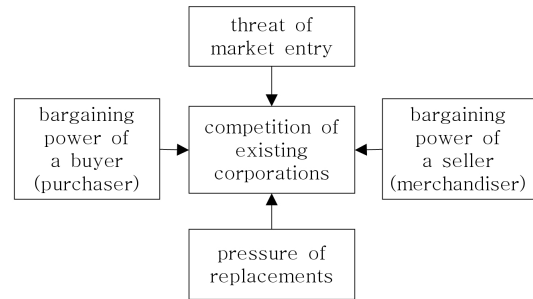
First, the growth recession and saturation market in the food market could be mentioned as one of characteristics. The rate of food manufacturing among manufacturing production was about 15%, while the weight of food manufacturing in the gross national product was about 4%.

Second, the smallness could be considered. 96% of about 78,000 food manufactures had less than 10 employees and 81.5% showed less than 0.5 billion won of sales scale.

Third, an increase in the import could be regarded. The food export had shown 0.1% increased rate per year from 1995 to 2005, whereas the import had increased 6.3% per year during the same period.

#### 3.2.2. Competition Factors

The analysis on competition factors of the food industry based on the industry structure model created by Porter (1998) was shown in <Figure 3> (Matsui, 2005).



<Figure 3> Competition Factors of Food Manufacturers

First, there had been a fierce competition due to the price and non-price competition in the competition among existing corporations. Even if there had largely been the price competition because it was not easy to differentiate products as a basic value of food, there had simultaneously been the keen idea competition which the new role was suggested as food was regarded as a part of life-style.

Second, the market entry was difficult as the oligopoly by several large corporations had increased. But, there were still some businesses easy for the market entry.

Third, there was the power relation that the larger the volume, the stronger the lobbying power in the lobbying power of the merchandiser and purchaser.

Fourth, replacements or new products could easily be put and lots of sales could be increased for a short time on success because there was not much regulation and limit in food differently from other industrial products.

### 3.3. SWOT Analysis

The SWOT analysis is an analytical method which draws strategic alternative after the opportunity (O) and threat (T) factor of the external environment are identified and the strength (S) and weakness (W) of an internal corporation are analyzed. The opportunity for a new business can be caught, using strengths of a corporation to the maximum, and strategies against threat factors can be searched in a variety of ways by minimizing weaknesses of a corporation through the SWOT analysis (Collins and Lazier, 1995).

SWOT analysis applied to food manufacturers was shown in <Table 1> (Matsui, 2005).

The following factors could be extracted as CSF (Critical Success Factors) of food manufacturing through the SWOT (Matsui, 2005).

First, the cost reduction should be promoted by decreasing in the waste of the production and distribution. Second, the competitive advantage should be made through an increase in the added value of the product and non-price competition. Third, the whole life-style including the food life should be suggested.

<Table 1> SWOT Analysis of Food Manufacturers

Strength (S)	Weakness (W)
<ul style="list-style-type: none"> <li>· Now how to develop the product.</li> <li>· Purchase route.</li> <li>· Equipments and machines.</li> <li>· Manufacturing technology.</li> </ul>	<ul style="list-style-type: none"> <li>· High rate of raw material charge.</li> <li>· heavy charges on the health control.</li> <li>· Short period of the product preservation.</li> <li>· Difficult demand forecasting.</li> </ul>
Opportunity (O)	Threat (T)
<ul style="list-style-type: none"> <li>· More opportunities to invest in new products.</li> <li>· High possibility of non-price competition.</li> <li>· Along with the development of the distribution technology.</li> <li>· High possibility of the profit improvement by IT information technology.</li> </ul>	<ul style="list-style-type: none"> <li>· Strong pressure on cost cutting.</li> <li>· Dependency on the supply of raw materials.</li> <li>· Keen competition with imported products.</li> <li>· Many risks on problems of health control.</li> </ul>

The food manufacturer should solve the following problems to achieve this CSF. First a corporation should review its own core capability and invest in the advantageous field intensively. Second, it should promote the cost-reduction by improving the purchase, processing, and delivery on the whole. Third, it should develop the product which could suggest the consumer's life-style. Fourth, It should develop the product suitable for the consumer's health and natural food tendency. Fifth, it should develop the product suitable the consumer's convenience tendency. Six, it should establish the integrated system between manufacturing and retail business used IT information technology, Last, it should improve the distribution structure newly from the SCM perspective.

### 3.4. Current Status of Food Manufacturing

According to Data Analysis, Retrieval and Transfer System by Financial Supervisory Service (2011), food manufacturers which exceeded 9 trillion won of sales in 2011 were 12 corporations including CJ cheiljedang.

Sales figures of Korean major food manufacturers were showed in the following <Table 2>.

<Table 2> Sales figures of Food manufacturers

(a hundred million)

order	Name of Business	2011
1	CJ Cheiljedang	65,382
2	Nongshim co. Ltd	21,708
3	Lotte Chilsung Beverage Co., Ltd	20,872
4	Lotte Confectionery co., Ltd.	18,541
5	Paris-Croissant Food Company	15,733
6	Ottogi Corporation	15,130
7	TS Corporation	14,352
8	Daesang Corporation	13,929
9	Namyang Dairy Product	12,029
10	Dong Suh Food Co., Ltd	11,505
11	Korea Yakuit Co. Ltd	9,560
12	Samyang Corporation	2,987

Source : Data Analysis Retrieval and Transfer System, Financial Supervisory Service)

## 4. Applications of BSC to Food Manufacturers

There were too many limitations in the data and information to approach the Korean food industry in terms of the industrial organization theory (Shin and Lee, 2010). The measurement of the business performance in the Japanese food manufacturer was conducted from four perspective of BSC.

Matsui (2005) developed 'Cross-analysis chart' as a frame of the practical strategy plan using characteristics of the matrix idea according to the portfolio analysis.

Characteristics of the cross-analysis chart developed by Matsui is as follows. First, it was reviewed as four cells of the 2x2=4 maximum matrix. Second, both the axes of the horizontal and vertical axis were set-up according to the analysis goal. Third, considered the left upper on the coordinate as the first quadrant. the right upper, right bottom, and left bottom were called the second, third, and fourth ceiling clockwise.

### 4.1. Financial Perspective

The financial analysis is very important in the food manufacturer. The financial analysis is largely to analyze the profitability, safety, productivity, growth, and activity using the financial ratio (Palepu and Healy, 2007). It can visibly show the correlation of the financial ratio by using the cross-analysis chart.

#### 4.1.1. ROI and ROE Analysis

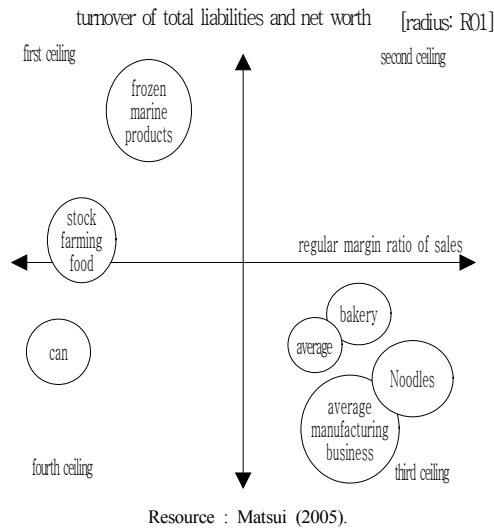
ROI (Return On Investment) measures the total management performance achieved by a corporation as the rate compared with the total capital invested. ROE (Return On Equity) is the index which shows how much profits a corporation creates by using the investment amount paid by stockholders (Krishna, and Paul, 2007 ; James, 2003).

It is necessary to increase the rate of sales or profits related to the total capital to increase ROI. The strategy intended to increase both the side can be the best strategy, even if the choice depends on a corporation's strategies.

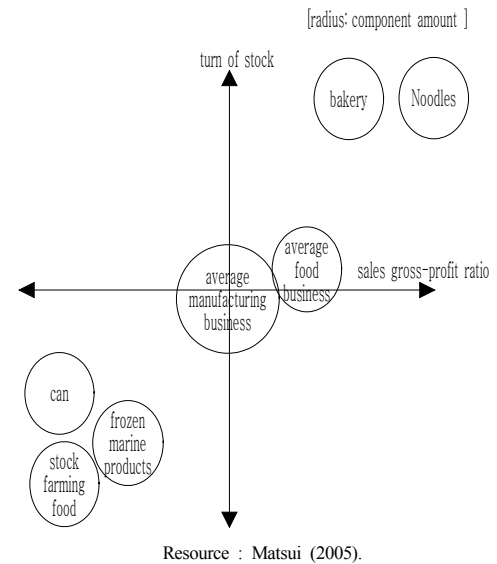
<Figure 4> is a cross-analysis chart written by using the average of corporations involved in food manufacturers.

There were many cases which the first or third ceiling were targeted at because it was difficult to target at the second ceiling which occupied the best position.

The frozen marine and stock farming product manufacturer at the first ceiling had high turnover of total liabilities and net worth, but low regular margin ratio of sales. There were not much profits left even if products were sold lots as products of this business had high rate of raw materials. In other words, the product had a characteristic difficult to increase its added value because it was a very common product.



<Figure 4> ROI and ROE Analysis



<Figure 5> Analysis on Contribution to Profits by the Product

There was a diversity of this business as there were some business with high regular margin ratio of sales like the noodle manufacturing at the third ceiling.

The canned product manufacturing at the fourth ceiling showed the disadvantageous financial position due to its low turnover of total liabilities and net worth.

#### 4.1.2. Analysis on the Contributiveness to Profits by the Product

For an analysis on the contributiveness to profits by the product, there are two kinds of methods such as a method used to compare the contributiveness to the profit and other one to identify the life cycle of the product by analyzing the contributiveness to the profit of the same product by the time series (Krishna and Paul, 2007).

<Figure 5> shows analyzed contents of the contributiveness to the profit in the food manufacturer. The trend in the whole food manufacturer was made in this study by using the average of businesses even if the contributiveness to the profit was originally compared and reviewed for multiple products in the same corporation when the individual corporation was analyzed.

It was assumed that the sales structure ratio was equal because the average by the business was showed centered on the average of the manufacturing in the above picture. Five businesses shown as examples in the above picture were divided into a group with the high and low gross-profit ratio.

Noodle manufacturing except the bakery and confectionery manufacturing at the best place on the second ceiling showed high contributiveness to the profit as it had high turn of stock and gross-profit ratio.

The frozen marine, canned, and livestock product manufacturing did not need to increase profits through a larger amount of sales due to their low contributiveness to the profit.

## 4.2. Customer's Perspective

The customer's perspective is the evaluation index of a corporation seen from the eye level of the customer. The image, credibility, and satisfaction can be measured from this perspective (Kotler and Keller, 2009). The target for an analysis regarded from the customer's perspective should definitely be decided because the customer of the food manufacturing is divided into a group of corporations and individual consumer. This study explained the analysis on the customer satisfaction and number of sales related to the food manufacturer.

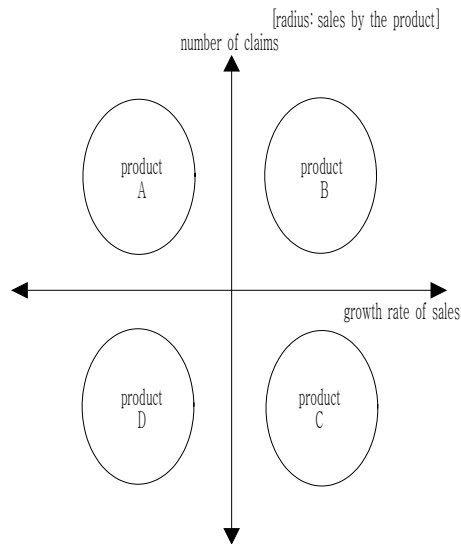
### 4.2.1. Analysis on the Customer Satisfaction

The analysis on the customer satisfaction was to evaluate the customer satisfaction by the increase in the sales and number of claims. It was more practical to analyze by the product in a case of the food sold to the individual by the stock production, while the analysis is conducted by the customer in a case of the food sold to the corporation by the make to order.

<Figure 6> shows the content analyzed by the product. The third ceiling with high growth rate of sales and low number of claims becomes the best position.

The product A on the first ceiling was the product with no increase in the sales, but big number of claims. It was the product with the low customer satisfaction even if it could not necessarily be said that the cause that the sales had not increased resulted from the high number of claims.

The product B on the second ceiling was the product with big number of claims, but increase in the sales. Therefore a corporation should decrease the number of claims so that an increase in the sales might not be sluggish, even if this product had high market competitiveness.



Resource : Matsui (2005).

<Figure 6> Analysis on Customer Satisfaction Rate

A corporation should arrange the management system not to cause the quality deterioration or service decline while making efforts to increase more sales as the product C on the third ceiling was taken at the best position.

A corporation should review whether this product was really sold because the product D on the fourth ceiling had the high possibility of problems in the product itself.

#### 4.2.2. Analysis on the Number of the Sales

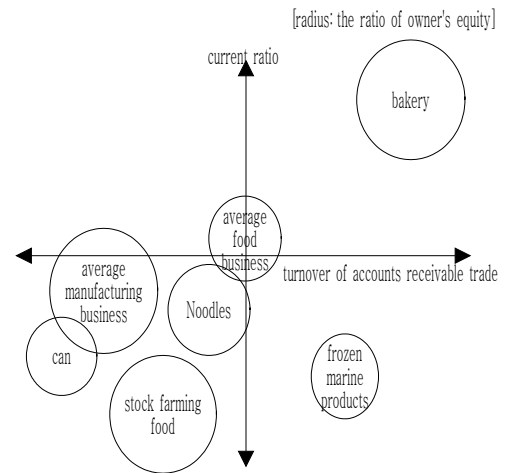
The analysis on the number of the sales is to analyze the liquidity of running expenses. <Figure 7> shows analytical results related to the food manufacturer.

This study took the current ration, not growth rate of the sales generally used on the horizontal axis to analyze the situation of the business, not the individual corporation. The study also used the ratio of the owner's equity, not the sales by the customer as the radius.

There was a big difference by the business. The counts receivable turnover of the food manufacturer was high on the whole and more than the average of the manufacturing in almost the business due to its distinctiveness of the business with many cash settlements by the direct marketing. But, the counts receivable turnover of the canned product manufacturing was below the average of the manufacturing.

The bakery and confectionery manufacturing on the second ceiling was at the better position than other groups because it's deal was largely made with the cash settlement.

The frozen marine product manufacturing on the third ceiling had high turnover of accounts receivable trade, but low current ratio, and not high ratio of the owner's equity because this business was the equipment-type industry which required a large scale of the equipment investment.



Resource : Matsui (2005).

<Figure 7> Analysis on the Number of the Sales

The noodle, livestock, canned product manufacturing on the fourth ceiling had low turnover of accounts receivable trade and current ratio, and was located at the disadvantageous position in terms of the number of the sales.

#### 4.3. Perspective of Internal Business Process

The internal business process in the food manufacturing includes the machine equipment, IT information technology system, personnel allotment, raw material management, distribution system, and product control. The perspective of the internal business process is to analyze effects of these factors on the quality, price, and period (Paul et al., 2010). This study explained the analysis on the contributiveness of machine equipment and ABC raw material related to the food manufacturing.

##### 4.3.1. Analysis on the Contributiveness of the Machine and Equipment

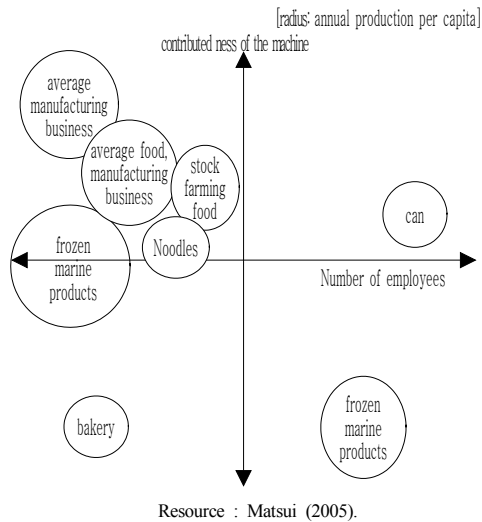
The analysis on the contributiveness of the machine and equipment is to check which side the food manufacturing process depends on between the labor or machine, namely which side a corporation produces products focused on.

<Figure 8> displays contents about the analysis on the contributiveness of the machine and equipment.

The whole food manufacturer had more employees and low amount of the machine and equipment compared with the average of the manufacturing. This meant that this business were labor-intensive on the whole. In reality, it can be regarded as the business with the diversity because there were equipment industrial corporations based on large corporation. The frozen marine product manufacturing mixed with the machine and equipment centered large corporations and labor intensive small and medium-sized corporations was analyzed by being divided into two groups.

The livestock product and noodle manufacturing on the first ceiling showed high amount of the machine and equipment per capita be-

cause a few employees made the mechanical production. But, it could be assumed that the amount of the machine and equipment per capita seemed to be big on the surface because the number of employees was small in the frozen marine product manufacturer (small and medium sized corporations).



<Figure 8> Analysis on Contribution of Technology

The canned product manufacturer on the second ceiling seemed to suffer form the cost control because it had the big amount of the machine and equipment and more employees.

The frozen marine product manufacturing (large corporation) was located on the third ceiling in spite of the large investment in the large-size machine and equipment because the picture showed the amount of the machine and equipment per capita and annual volume of production.

The bakery and confectionery manufacturing on the fourth ceiling was the business at the best position with low amount of the machine and equipment and small number of employees. It could be regarded as the best position if it could achieve high rate of return even if it was difficult to evaluate with the data shown in this picture.

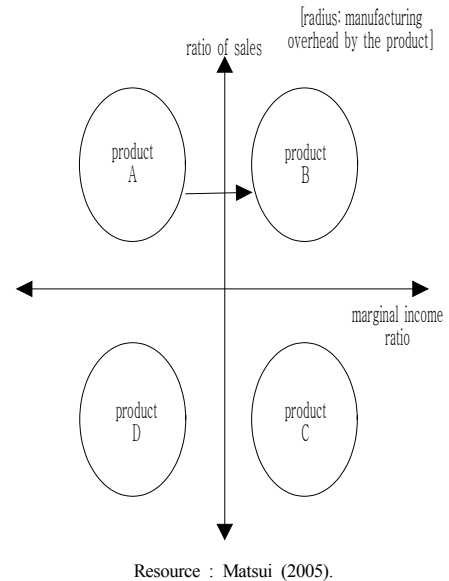
4.3.2. ABC Cost Analysis

The ABC (Activity-Based Costing) cost analysis (James, 1997) is a set of the process which traces the cost price of the corporation activity, accumulate the performance data, and provides the data for the review of real results related to the planned cost to suggest the modification activity if necessary.

<Figure 9> represents contents of the ABC cost analysis in the food manufacturer. The second ceiling with high sales and the profit volume ration applies to the best position.

The product A on the first ceiling was the product which could not create the profit because of the high manufacturing cost in spite of good sales. In general, It could be excluded in this ceiling because the rate of the raw material was high in the food manufacturer. A corporation should keep the manufacturing cost down through the re-

duction in the purchase cost and direct labor cost, and increase the marginal profits.



Resource : Matsui (2005).  
<Figure 9> Analysis on ABC Production Cost

A corporation should make efforts to increase more profits than the sales with the support of the marketing activity because the product B on the second ceiling was located on the best position.

The profit C on the third ceiling was the product with low sales in spite of the possibility of creating the profit. It should be moved to the second ceiling if there was the possibility of increasing the sales even if it could stay at this position if it was for the niche market.

The product D on the fourth ceiling was the product with high risk of the deficit possibility. A corporation should review the possibility of reducing the expense and consider the throwing out of this product in a case of the low possibility.

4.4. Perspective of the Employee's Learning and Growth

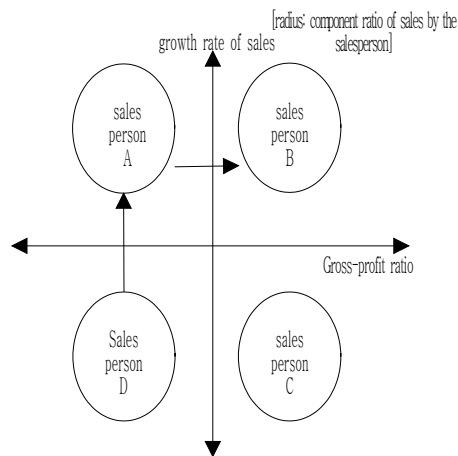
It is effective to visualize the work performance to improve the motive of the employee. The perspective of the employee's learning and growth means to analyze the work performance by the person in charge and product. This study explained the analysis on the sales behaviors and added value related to the manufacturing part of the food manufacturer.

4.4.1. Analysis on the Sales Behaviors

The role of salespersons is very important in the food manufacturer which has the department store, large and super market, and convenience store as its customer. This study analyzed the relation between the rate of increase in the sales and gross-profit ratio by the salesperson.

<Figure 10> presents contents of the sales behavior analysis of the food manufacturer. The best position was the second ceiling with

high rate of increase in the sales and gross-profit ratios.



Resource : Matsui (2005).

<Figure 10> Analysis on Business Action

The salesperson A on the first ceiling had the low gross-profit ratio in spite of an increase in the sales. A corporation should minutely investigate whether he had lower the price excessively to increase the sales even if the price-setting was appropriate.

There was not much problem because the salesperson B on the second ceiling took the best position. A corporation should review the possibility of increasing the sales by increasing the number of employees in this field, and consider to allow the salesperson B to guide salespersons with low achievements.

The sales person C on the third ceiling had the problem that the sales had not increased in spite of the high gross-profit ratios. A corporation should identify and respond to the situation even if it was a very difficult choice to increase the sales by reducing the selling price or keep the sales by responding to customers delicately while keeping the current sales price.

The salesperson D on the fourth ceiling was located at the difficult situation which the sales had not been increased along with the low gross-profit ratio. A corporation should investigate causes whether the salesperson had low sales ability, or short effort, or whether the product was not suitable for the market.

4.4.2. Analysis on the Added Value

The analysis on the added value is to evaluate whether the setting of the added value by the product was proper or not by analyzing the relation between the sales of a product and labor's relative share by the product. the labor's relative share means the rate of the salary among the income or added value made withing a corporation, and calculates the rate of the wage among them by obtaining the added value after deducting the material cost such as raw material and depreciation cost of the facility and machine (Mohan, 1999).

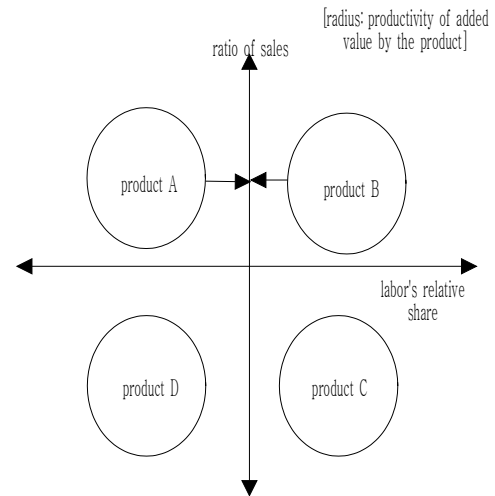
<Figure 11> shows analytical contents of the added value of the food manufacturer.

The product A on the first ceiling was the product with low labor's relative share, but high sales. A corporation should consider

whether the chilling effect of employees could be brought because the wage was set too low if not even if it did not matter in the business with high rate of the machine and equipment like the equipment-type industry.

The product B on the second ceiling was the product with high labor's relative share in spite of the secured sales. There were many products like this in the labor-intensive food manufacturer. A corporation should review profits of these products by the product. It did not matter with the product which created the profit. A corporation needed to reduce the personnel expense by promoting the work rationalization at the first onset of the cutting when the profit was not created.

The product C on the third ceiling was the product that the sales had not been increased in spite of utmost efforts, and risky due to the possibility of pressing the profit. A corporation should investigate causes that the sales had not been increased, make efforts to increase the sales, and review whether the labor's relative share was proper or not.



Resource : Matsui (2005).

<Figure 11> Analysis on Added Value

In a case of the product D on the fourth ceiling, a corporation should promote the morale of the salesperson by prospecting the preservation of the profit through an increase in the sales, and heightening the labor's relative share.

5. Conclusions

There are various types of business from large corporations to petty retail stores, and from the facility-intensive to labor-intensive in the food manufacturer. This study suggested many improvements by selecting subjects with a high commonness in the food manufacturer through measured results of the management performance used the BSC.

First, the management of raw materials should be considered. There were many cases that the slight waste of raw materials became



to be connected to the rising cost and then pressed the profit because the rate of raw materials was high in the food manufacturer. The food manufacturer should bear lots of loss due to the quality deterioration when it did not properly manage raw materials with short preservation period. The food manufacturer could establish and utilize the information system for this management.

Second, the improvement of the facility-operation rate should be reviewed. The food manufacturer should try to collect the investment cost by heightening the rate of the facility operation because the investment amount for the facility was very large in the manufacturing such as the livestock and canned product. The food manufacturer should establish the production system which could respond to the production on the peak and plan the standardization of the production, optimal production schedule, facility check-up, and repair plan in addition to the recognition of the facility operation record. In addition, the food manufacturer should effectively utilize the information system for this.

Third, the reduction in the personal expense should be considered. The reduction in the personal expense could be the important problem in the labor-intensive manufacturing. The food manufacturer should intentionally allot direct workers according to the plan and use the time efficiently to reduce the personal expenses. In addition, it was effective to consider the working hours of indirect workers.

Fourth, the customer management should be regarded. The customer management was very important in the food manufacturing in which the product for business was produced and sold. The food manufacturer should concretely identify the purchase history of the product, inventories, and future purchase plan, and have the structure which could heighten the customer satisfaction by the production and delivery just in time. It also needed to establish the information system including the information network as a structure for this.

At last, the lifestyle should be reviewed. The food manufacturer should actively conduct proposals which influenced the food culture to secure the high profit in the future. It needed to analyze the extensive data by the market research related to the consumer behaviors and psychology, and survey on the actual condition related to the food life to display these activities.

This study attempted to measure the management performance of the food manufacturer by using the BSC in the spotlight as one of business management techniques to achieve the vision of a corporation. To achieve the purpose of this study, the concept and four perspectives of BSC was reviewed in Chapter 2. The problems which should be solved through the environment and industry analysis on food manufacturers which BSC would be applied were deduced in chapter 3. The management performance of food manufacturers was measured using the cross-tabulations chart of BSC in chapter 4. At last, prescriptions for successful food manufacturers were suggested based on BSC analytical results in chapter 5.

This study was able to measure the management performance of the food manufacturer by using the BSC through this set of the analytical process. But, there were many limitations in applying these results to Korean food manufacturer as this study applied it to the Japanese food manufacturer and then analyzed. Therefore, it would be expected the analytical results much more applicable in measuring the

management performance of Korean food manufacturer by seeking plans which the business management technique of the BSC was applied to the Korean food manufacturer and analyzed.

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