

Accounting to Make Effective Use of “Genba Power”

-For the Fair Performance Evaluation and Implementation of Total Management Control-

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ABSTRACT: The objective of this paper is to clarify how the accounting can be useful for the Lean enterprise, especially to drive the Kaizen and to make effective use of “Genba” spot power. When the business enterprise starts the Lean journey, it is necessary for accounting to evaluate the effectiveness. The effect of “the continuous improvement” produces to meet the heaping up advance of the daily effort on the spot in many cases. First the appropriate evaluation for Genba effort is necessary as a result of the proper management. To implement the Lean in the company by its form, it is to show an “invisible” effect with “visible” numerical value, as “the Bridge Principle” of accounting significantly exists here.

On the other hand, the following viewpoint of the spot practice is thus accomplished earlier, and what back measures for the accounting are. There should be an idea and a policy of the company, aiming at what is most suitable first. With such in mind, the accounting should exist to pursue the effort along the policy on the spot. The role of accounting as the management control means is demanded as a real-time function not a subsequent element. Therefore, “Hoshin Kanri” policy management based on the top management and Genba interactive communication is necessary. Also in an organization form, the autonomous composition is found, where Micro-Macro loop is formed. The “Visual Management” is demanded with more “visual accounts” here, as they are same as the “visualization of the product”.

Under the recent management issue of globalization and the business fluctuations, the “deep” competitiveness of the company on the basis of the management power is still more found, and the role of the accounting becomes even more important.

KEYWORDS: Kaizen, Fair Performance Evaluation, the Bridge Principle

1. INTRODUCTION **Accounting as the Bridge Principle** **- for linking company competitiveness and business performance -**

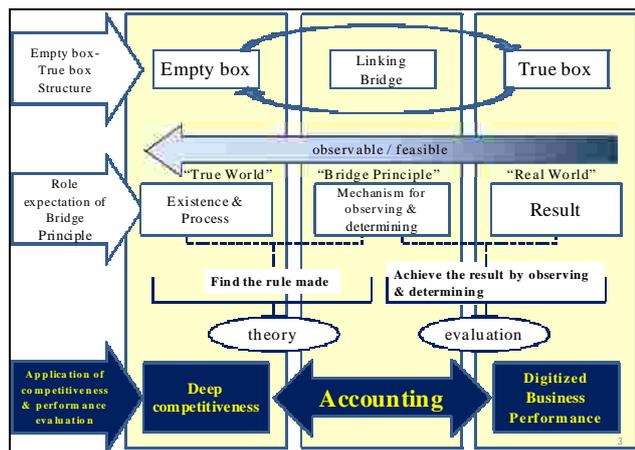
The Japanese production company is improved for company competitiveness reinforcement constantly. This paper is intended to elucidate the role and the issue that accounting should serve to promote improvement. Therefore what should be of a fair

performance evaluation and the management control of the organization are examined. As an effective framework for examination, the Bridge Principle is quoted.

Curl G. Hempel proposed it as a “linking bridge” with “the empty world” and “the existent world”¹⁾ with the Bridge Principle. It is late Professor Ryuji Takeda, who applied the concept to the real methodology including the accounting theory. This concept has commonly to connect with the “empty

box-true box" theory of Professor Takeda in the same way.

Figure 1 Bridge Principle Concept



The document source : R. Takeda, 2006 May & Oct (added and altered by writer)

Figure 1 applied the role of accounting to "empty box-true box" structure of which Professor Takeda showed. In the figure, the role as the Bridge Principle is expected for accounting to link the "deep" competitiveness²⁾ to the digitized business performance which is the "invisibly true world" and "visibly real world".

This paper examines many issues that need the role expectation of the accounting as the Bridge Principle by accounting to make use of "Genba Power" in the basics.

First it is to review the fair method of evaluation for the point whether evaluation is done toward the direction that the effort of the company concerned is right as expected. In that case, the role that accounting with general technique known as counting money has great significance. This issue will be examined in Chapter 2.

Then it is whether the accounting as the Bridge Principle will be enough, if business performance is represented accurately. Based not only on analysis, it is needless to say that a situation grasp "now here"

and a precise managerial decision for it are necessary in real time so that a company grows further toward the future. For the management control promotion of an active organization, the role of the Bridge Principle to link the present power to the result digitized is required. It can become the compass of the corporate management, if accounting can accurately mirror them. This issue will be examined in Chapter 3.

2. Mirroring Function of Accounting

- for the fair evaluation of Genba improvement effect -

At first, the issue for mirroring the result accurately is reviewed. The traditional all cost accounting is designed assuming "mass production" and "large lot production." It does not necessarily have consistency for paradigm shift that "small lot production," "limited production of diversified products" and "variety variable production" are considered as a production system. Some have been pointed out up to this time³⁾.

However, the administrative accounting technique that is total in response to the problem is not built. Above all, the relations between the improvement effect and the profit on PL are not yet completely linked concretely. Those effects such as "stock reduction" and "lead time reduction" are linked to the improvement of turnover and cash flows for accounting. In this chapter, they are examined.

2.1 Accounting Valuation of Limited Production of Diversified Products

"Cost is reduced if volume production is large." This means that volume production works for a cost reduction. **Table 1** shows this scheme and relations with Genba improvement effect. Here, there are two meanings of "volume production."

Table 1 Scheme of "It is reduced when made a lot" and the issue of "Small lot and small production"

	Volume/ lot size production			Shift to "small lot & small production"	
	Cost reduction factors		Cash flow decrease	Genba issue	Accounting issue
	Variable	Fixed			
Volume production	·Volume purchasing	Fixed cost reduction per product	·Unsold dead stock	<No change by Genba efforts > ·Material cost (? Purchasing) Facility investment (? Top management)	Fixed cost separating ·Variable costing ·Throughput accounting Product cost of stock separating Backflush costing
Large lot production	·Material loss reduction ·Initial loss reduction	Number of setup reduction Setup cost reduction per product	·Spare stock for sales Large lot	<Change by Genba efforts > ·Rate of loss reduction Setup time reduction	·Material loss reduction ? Reflecting on cost ·Time reduction ? Reflecting / Not reflecting on cost Fixed labor cost ? Capacity visualization ? Lean accounting

The document source : Writer

One is that the "total amount of production itself is large," and another is "making with large volume at one time."

First, the point where the cost reduction factor by volume production itself is beyond the effort in Genba is clarified basically. This appears the phenomenon that fixed cost burdens increase in a sudden underproduction, and a recent automotive industry exerts pressure on the performance. Even Toyota Motor Corporation, an originator of the continuous improvement, became in the red because of the break-even point structure.

About this problem of a fixed cost burden, it is not solved by the effort of Genba basically. However, in cost accounting, these elements can be separated from Genba evaluation.

By variable costing, contribution margin is calculated only in a variable cost element, and overhead is made to bear from there. The effort of Genba is reflected to contribution margin.

The throughput accounting enables the exclusion of the problem of the overhead allocation, by making

all expenses except direct material fee to period cost.

Another issue of volume production is the lot size. In other words, there are effects by making it with large lot. They are loss rate decrease at the time of production start, setup cost decrease and allocation cost per product unit decrease.

However, about them, the cost to increase in becoming it can absorb small lot by a different improvement effort. About the material loss rate, an effect is particularly plain because the improvement result is linked directly to the amount of profit.

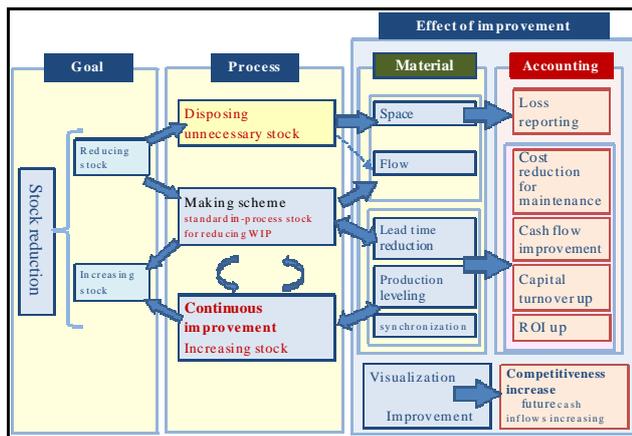
As for the improvement to shorten time such as setup reduction, the improvement effect does not link directly to the profit, if the labor cost is a fixed salary system and becomes a fixed cost. In this case, it is necessary to visualize the shortened time as "Capacity." It is because this capacity has two possibilities. One is cost reduction when various investments are gathered by the integration with the other departments, and another is to lead the future cash inflows increase. The proper example is shown on this point in Chapter 3.

2.2 Accounting Valuation of Stock Reduction

By the slump of the automotive industry, stock held in large quantities became a problem. As for the effect of the improvement to reduce such a stock, what kind of measurement and evaluation should be done.

Figure 2 pays off "stock reduction" by the result. There are two kinds for stock reduction. One is the disposal of the stock in front, and another is the reduction of the stock on and off process as the effect of the improvement. In **Figure 2**, both mean to reduce stock, but the meanings are different.

Figure 2 Improvement Effect of Stock Reduction



The document source : Writer

In the case of , stock is disposed in large quantities at an initial stage of the improvement, and as a result, a large amount of "abandonment loss" is given in the fiscal year concerned. However, this is temporary special measures. Therefore, it is added to nonoperating expense or extraordinary expense. It is the rearranging of the "negative inheritance in the past".

With the case , the minimum number of stocks is decided in the flow of the process, and other stocks will be reduced. In this case, instead of disposing these stocks, all stocks are used in the

process to flow to the next process, while preceding process is often stopped. Therefore, the loss in accounting such as "abandonment loss" does not necessarily reported.

In case , as a result of various improvement activities in the process, a smooth flow is achieved to avoid stagnation and stocks on and off process.

and are the stock reduction to be required as original improvement. Particularly is demanded.

The effect of the stock reduction as the original improvement is divided into the material side and the accounting side. At first, the material side is reviewed. If there is space by disposal of the stocks, the plant can be seen all around well. As the improvement advances, the half-finished goods flow without stagnation, not only just flow through the process.

Finally, the synchronization is achieved. Half-finished goods of multiple processes flow constantly toward the finish process. Moreover, between processes, they join on time. Therefore the stocks are drastically reduced and lead time is reduced as well.

The stock reduction clarifies not only the flow but also the disincentive of the flow. When the stock reduction is achieved in the process, the production line (flow) stops immediately if the problem arises. Consequently there is the effect that the problems of the process become clear. It is not merely to visualize the situation in the presence, but it is to visualize the essence of the problems from a long-term viewpoint of problem resolution. The corporate competitiveness is reinforced only after it is thoroughly reached.

Next, the accounting side is reviewed. The inventory cost reduction effect is most clear. It is to reduce the expenses for the inventory control, that are warehouse charges, space charges and labor fees for the inventory control. In addition, the interest

cost can be reduced when the fund spent in stocks depends on borrowing.

However, it is more effective that the operating cash flow is improved. The money spent in a starting point of the process is stagnant in the form of stocks. It is immediately recovered by Genba improvement. The cash flow statement shows this effect clearly.

In addition, as a result of stock reduction, inventory turnover rises. It is to be noted that the capital turnover rate rises as well. Not only sales profit rate is important, but also profit ratio of capital is important. This indicates the recovery power of the capital by the company. The stock reduction contributes to this recovery power.

One more important point is in the significance of accounting. If the corporate competitiveness is reinforced, the future cash inflows will increase. Not only the current accounting numerical figures are shown, but also the future accounting numerical figures are shown as the effect of stock reduction.

As the accounting technique that can contribute to stock reduction, the effect of "backflush costing" is evaluated. Assuming no stock first, all cost is added to the cost of goods sold. When stocks exist at the end of the term, they are backflushed. This technique not only simplifies the accounting tasks but also visualizes the stocks that should not exist. It works as same as the progress control board in the plant. But the accounting processing in a short term is more desirable than the backflush only at the end of the year for more effectiveness.

2.3 Accounting Valuation of Lead Time Reduction

The stock reduction is closely related to flow and information at Genba. As half-finished goods flow smoothly, the stocks are reduced. On the other hand, reducing the stocks makes the flow smoothly and fast.

In other words "lead time reduction" and "stock

reduction" are closely related. It does not matter whichever comes first. These factors are simultaneous in Genba improvement at the same time. It is to decide which side should be done first in each Genba by priority of the on-site problem.

3. Management Function of Accounting

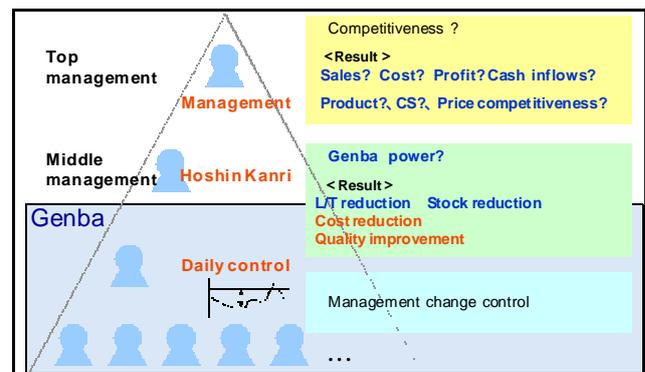
- for the improvement promotion in Genba -

In spite of appropriate mirroring, the accounting function of the real time organization management is reviewed for the company, to make an effort toward the right direction. When the improvement is introduced into Genba, the function of accounting is particularly important, to evaluate the effect fairly and to propel the improvement.

3.1 Bridge Principle in the Organization Level

The Bridge Principle linking the company competitiveness to the fair performance evaluation, mentioned in Chapter 2, can apply to the corporate structure (Figure 3). The evaluation effect of the improvement differs by every management level.

Figure 3 Evaluation Effect of Improvement Different by Every Management Level



The document source : Writer

At first, the top management of the company makes the corporate policy. Of course, corporate evaluation is required as a whole. In many companies, the ultimate purpose is to realize

sustainability of the company by sales increase, profit increase and cash flow improvement. In order to do so, the product power improvement and CS improvement should be done, taking into consideration the customers outside of the company.

The indicators of these improvements are converted into the concrete indicators of Genba in the middle management, as so-called QCD indicators which are lead time, quantity of stocks, cost reduction target and quality standard. Under the middle management instruction, the positive achievement of the improvement is required in Genba. The implementation of the improvement activity should take first priority for problem points becoming clear from daily control.

In the organization, the conversion function of the middle management is important as the Bridge Principle. This conversion function links the invisible company competitiveness made by the improvement in Genba to the actual performance evaluation. The significance and the role of management accounting exist here.

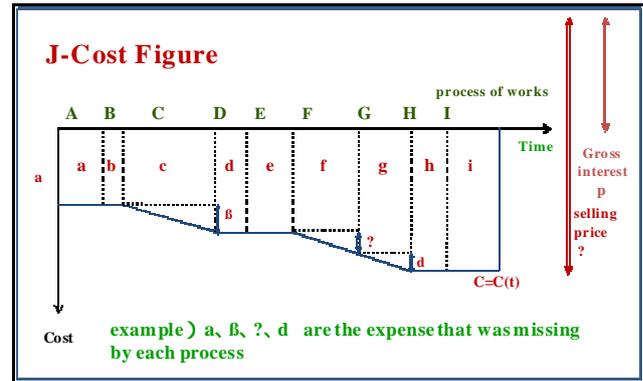
3.2 Evaluation of “J-Cost” and ”Lean Accounting”

There are two accounting techniques of “J-Cost” and “Lean Accounting” to be evaluated, as they have the function of management control to promote the improvement concretely. First, "J-Cost" is the theory to visualize the effect of lead time reduction.

Figure 4 is the “J-Cost figure” which schematizes the way of this theory. A horizontal axis shows lead time, while a vertical axis (the lower direction) shows the cost of each process. “J-Cost” is the area of the lead time multiplied by the cost. If this J-Cost figure is placed on the board in Genba, it is easy to visually know the large J-Cost. And if the lead time is reduced, the effect of the improvement is directly shown; in other words, J-Cost figure links

directly with the effort of the improvement. Therefore J-Cost is a very helpful improvement indicator.

Figure 4 J-Cost Figure



The document source : M. Tanaka, 2004

But it does not match the GAAP and cannot use it for the cost accounting for external reporting. In addition, the complexity of work is an issue, because the minute data are actually required. In implementation, the application of IT should be premised.

Another theory is a series of the accounting tools known as “Lean Accounting.” The collective strength of Lean Accounting should be evaluated as the total tools of management accounting, particularly the practical Genba convenience. The four fundamentals of Lean Accounting are as follows:

- 1 Provide accurate, timely, and understandable information to motivate the lean transformation throughout the organization, and for decision-making leading to increased customer value, growth, profitability, and cash flow.
- 2 Use lean tools to eliminate waste from the accounting processes while maintaining thorough financial control.
- 3 Fully comply with generally accepted accounting principles (GAAP), external reporting regulations,

and internal reporting requirements.

4 Support the lean culture by motivating investment in people, providing information that is relevant and actionable, and empowering continuous improvement at every level of the organization.

These ways of thinking help the management control in the corporate organization. Moreover, when Lean Accounting is studied from the viewpoint of the Bridge Principle, it is significant to place emphasis on the capacity linking with management decision to Genba action.

In Lean Accounting, Box Score such as **Table 2** is used as an overall management tool. It is a matrix table which is prepared by using the indices of Genba management, capacity and financial indicator.

Table 2 Box Score

	First week	Second week	...	End of the year
Management indicator in Genba	Units per person	36.16	42.05	51.39
	On-time shipment	98.00%	94.00%	98.00%
	Dock-to-Dock days	23.58	20.50	16.50
	First time through	46%	42%	50%
	Average product cost	\$388.46	\$348.66	\$316.91
	AR days	34.3	37.0	35.0
Capacity	Productive	10.2%	12.8%	24.7%
	Non-productive	55.4%	52.3%	23.4%
	Available capacity	34.4%	36.4%	51.9%
Financial indicator	Revenue	\$1,101,144	\$1,280,400	\$1,408,440
	Material cost	\$462,480	\$512,160	\$535,207
	Conversion cost	\$250,435	\$231,184	\$208,696
	Value stream gross profit	\$388,228	\$536,356	\$664,537

The document source : Maskell B. H., Baggaley B., 2004

It is to note “capacity” of the middle part of the table. Total working time of employee is classified into the productive time (value added time), non-productive time (non-value added time) and available capacity (idle time). The rate of each time is in percentage as shown. Here the idle time is taken as “available capacity” not as a “waste.”

It is the Genba responsibility to increase this capacity by continuous improvement. On the other hand, the management responsibility is to make use

of the capacity in other areas. Box Score is evaluated as the excellent management tool from the point of showing the difference of Genba and management. If the capacity is utilized effectively by the management, it leads to increase the future cash inflows of the company. In other words, the function of the Bridge Principle is to link company competitiveness to future performance.

3.3 Micro-Macro loop and Hoshin Kanri

Here the Bridge Principle is reviewed from a different viewpoint. As the frame work to run the organization, the MM (Micro-Macro) loop concept is used. “When the need arises to coordinate the cooperation of heterogeneous people for the efficient achievement of the goal, a management activity independent of work activity is necessary.⁴⁾” MM loop shows information flow by this management activity. And it has the following features:

1. It is the mechanism to build the relationship between overall organization (Macro) and individual members (Micro).
2. It focuses on the information flow between Micro-Macro.
3. The information flowing between Micro-Macro is classified into the ideological information as the individual decision making or a sense of values and the active information⁵⁾.

This MM loop is the concept of the information flow of the organization. If it is applied to the organization activity, the loop becomes the policy management Hoshin Kanri.

With Hoshin Kanri, the business can achieve the “innovative implementations of cross-functional management and daily control of quality, cost and delivery (the so-called QCDs).” And, “by applying PDCA systematically, Hoshin integrates planning

and execution at all levels of the organization”⁶⁾.

In Hoshin Kanri, the policy deployment is essential at each level of the organization. At first, the top management establishes the management policies of the company and the long-and-medium-term management planning. Based on them, short-term planning is formulated. Then, based on those top policy and plans, the middle level management deploys more concrete policy. It is the main feature of Hoshin Kanri that the Hoshin (policy) becomes more concrete in the lower level management to execute at Genba. Hoshin Kanri is not just a top-to-bottom management policy, but it has great significance as the management control function.

Another feature of Hoshin Kanri is that every level has its information flow. In other words, there is MM loop between every level of the organization. As a result of chaining them, it becomes an integrated MM loop.

When MM loop is looked from the point of the Bridge Principle concept, Hoshin Kanri has the same function as the conversion function of the middle management mentioned in Chapter 3 Section 1. It is a concrete conversion function tool to link the "invisible" company competitiveness to the "real world" performance demanded by top management. In other words, it is an excellent example of the management control function of accounting.

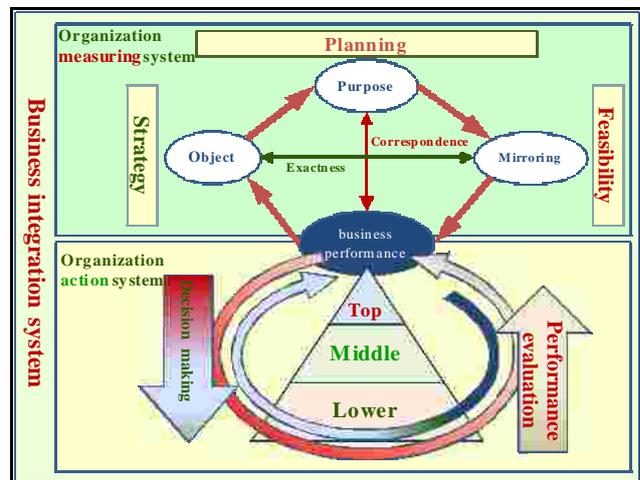
4. Conclusion Reflecting the Genba Efforts Appropriately on Business Performance

- for the Human respect and Sustainability -

The role of accounting as the Bridge Principle reviewed in this paper has the following two functions. The financial accounting is to appropriately report the business performance externally. And the management accounting is to control the day-to-day management.

There is no priority to the financial accounting function and the management accounting function. Both are same to link "invisible world" company competitiveness as the effort in Genba to "real world" numerical performance evaluation. This is the general issue of accounting totally demanded.

Figure 5 Business Integration System



The document source : Writer

Figure 5 shows this issue. The “organization measuring system” which evaluates the fair performance is demanded. At the same time, the “organization action system” of appropriate management is demanded as well. When the “business integration system” consolidating both of them functions, the competitiveness of the business increases for the future cash inflows.

The achievements of this issue are that the effort is accepted in Genba and the preferable performance is accomplished. The former is known as the realization of the "human respect", and the latter is known as the accomplishment of the "sustainability."

It is concluded in this paper that the accounting should be the “Bridge Principle” linking Genba and the business performance evaluation, to realize both ideal goals.

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