

# Micro-profit Center System for Empowerment : A Case Study of the Amoeba System at the Kyocera Corporation<sup>1</sup>

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## Introduction

Empowerment can be the key to successful management (Johnson, 1992). Some Japanese companies use micro-profit center systems to this end<sup>2</sup>(Cooper, 1995).

Kyocera Corporation, one of the most profitable and fastest growing companies in

Japan, was founded in 1959 as a small-scale producer specializing in fine ceramic parts (see Fig.1 and Fig.2). Since then, the company has been diversified to become a vertically integrated manufacturer with fine ceramic technologies as the foundation of its business (see Fig.3).

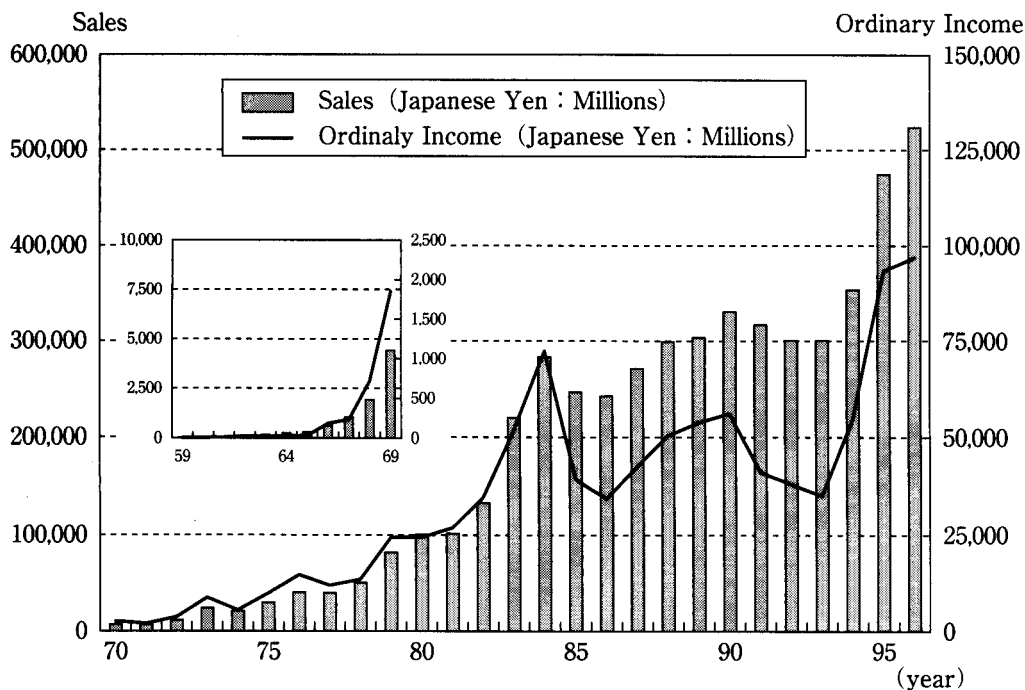


Fig 1. Sales and Ordinary Income

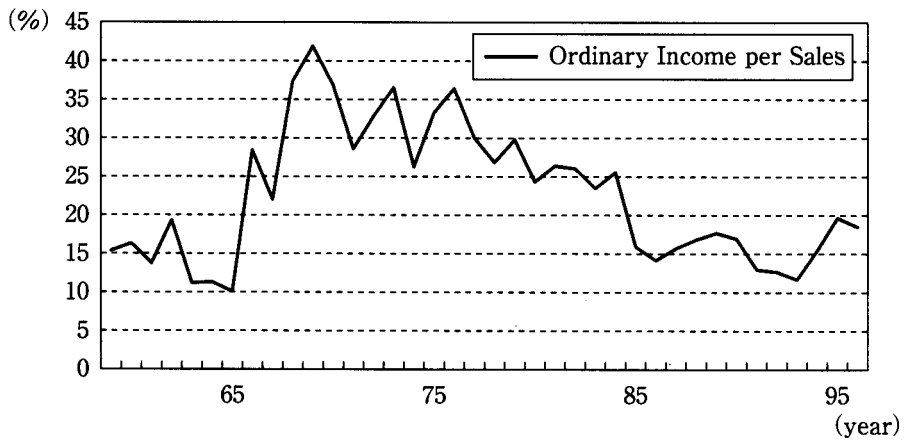


Fig 2. Ordinary Income per Sales

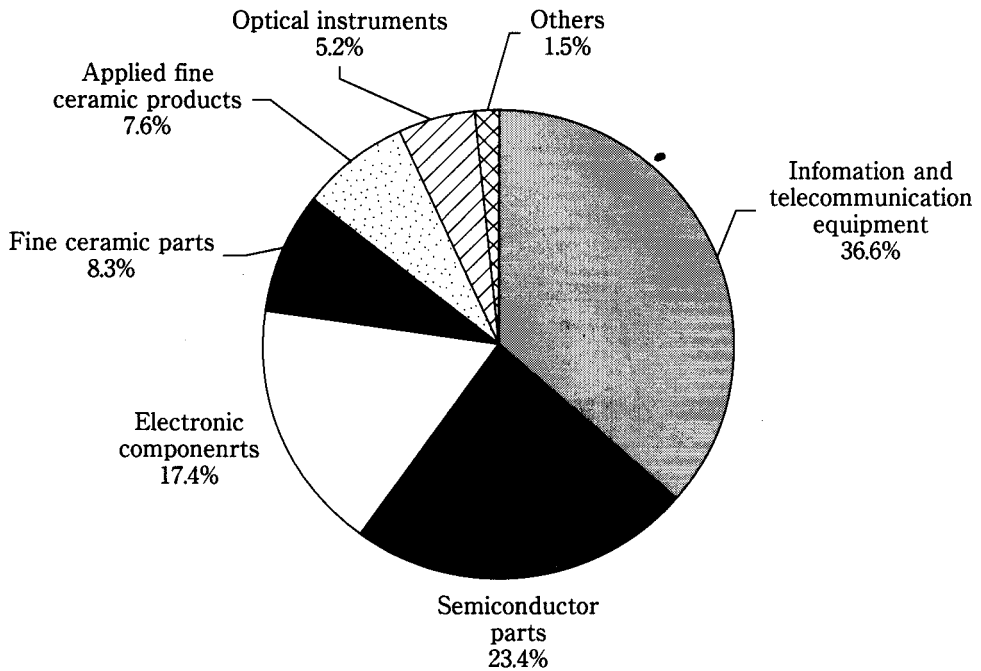


Fig 3. Sales Information by Product (1996)

Kyocera has been armed with its micro-profit center system, which creates a large number of self-support units called "amoebas." Amoeba is a small autonomous organization composed of 10 people in average. Like a unicellular animal, it is continually disunited and united. A single step of the manufacturing process or a small regional area of sales offices can be divided into this unit. Once becoming an independent amoeba, it becomes self-sufficient. It is supposed to earn its own living not only by reducing the cost of its products or services, but also by selling them to internal and external customers.

The ultimate purpose of this system is to raise the entrepreneurial leaders. Under the pressure to run assigned businesses, the amoeba leaders are expected to learn what management is about and to realize how enjoyable it is. Though all the leaders do not have enough experience to manage the profit centers, they have to be responsible for the entire business just like the presidents of real companies. The leaders are required to make decisions on such matters as the volume of production, selling prices, investment, and the appropriate size of the amoeba.

The first question of this study is how those inexperienced leaders can make such difficult decisions. And the second question is how such highly autonomous micro-profit centers can join their forces. Little attention has been given to the precise mechanism of the amoeba system<sup>3</sup>. Based on our intensive case study, we provide evidence that a well-designed management accounting system, together with the corporate philosophy and the flexible organization, plays an important

role to support empowered amoeba leaders.

## The Research Method

Our concern is not to verify "grand theory," but to discover the "grounded" theory of the amoeba system (Glaser and Strauss, 1967). As qualitative information is suited for this purpose, Tani<sup>4</sup> and I have conducted intensive case studies at Kyocera Corporation and its subsidiaries since 1995. We investigated various aspects of the amoeba system such as accounting, administration, organization, leadership, marketing, manufacturing, R&D, new business, corporate culture, and corporate philosophy.

Research materials were collected mainly from semi-structured interviews and direct observations. We had interviews with executives of administration, manufacturing, R&D, and new business, and with amoeba leaders of manufacturing, management, and accounting. We observed shipment, manufacturing, monthly meetings, morning meetings, and so on at Kokubu plant and Shiga plant of Kyocera. Additional research materials were gathered from analysis of planning and control materials, documents of "the amoeba management workshops<sup>5</sup>" and so on.

## The Micro-profit Center

Except for some administrative and R&D sections, amoebas are usually operated as profit centers regardless of their size. In the case of manufacturing amoebas, sales to internal and external customers are recognized as their revenues. To make profits, amoebas try to minimize their controllable costs. Moreover, it is peculiar to Kyocera

that they are allowed to negotiate the buying prices of parts and services with the selling amoebas, not simply following the pre-determined transfer prices on market-basis or cost-basis.

Buying and selling between amoebas does not always take priority over the dealings with the external companies. If the terms of the external offer are more favorable than those of internal one, "the buying amoeba" can make a deal with the external suppliers. In order to continue the dealing, "the selling amoeba" needs to offer quicker delivery or higher quality as well as lower costs than external suppliers. On the other hand, the selling amoeba is also permitted to sell the external customers its products at higher prices, as far as these dealings do not damage the Kyocera's competitive advantages.

By removing the boundaries of a company, market mechanism prevails among every amoeba including upstream ones that do not face the end consumers. Amoebas are expected to be competitive in the market and always improve themselves, even though they possess fewer resources than external competitors.

## The Entrepreneurial Leadership

What amoeba leaders need is an entrepreneurship. They are responsible not only to make their own amoebas profitable by carrying out the given tasks efficiently, but also to grow them up in the long run by planning monthly, yearly, and mid-term (5 years) targets and innovating on the existing conditions.

On selling products, leaders ought to

consider the long-term relationship with customers and set appropriate prices to satisfy both sides. When making production plans, leaders estimate the yield rates and place the right amount of orders. If it is possible to gain the economy of scale from the tie-in order, leaders will try to make a contract with the supplying amoebas for harmonizing each operation and sharing the merit. Since deciding appropriate investment is also the leaders' duty, they will make efforts to keep in touch with other sections as marketing and R&D to gather the up-to-date information.

Moreover, how to organize amoebas is particularly important in the amoeba system. As there is no fixed rule to divide them, the judgement depends on leaders' management ability. Taking advantage of the amoebas' flexibility, the leaders can freely modify the organizational structures. For example, the size of an amoeba may be reduced and the criterion for dividing amoebas may be changed from the manufacturing process-basis to the product-basis. Kyocera employees believe that it is time to revise the organization when leaders feel difficulties in grasping the situation of their amoebas or when the members' motivation decline as well as when their performances become worse. The new organization is expected to raise their motivation and support leaders' decision making.

Though the size of amoeba is even smaller than the smallest unit of the divisional organization system, the responsibility of the leader to amoeba is as great as that of the divisional manager. An amoeba is so small that it may look inefficient to delegate authorities, but this micro-profit center has many benefits such as good face-to-face

communication among members, acute sensitivity to the environmental changes, and quick responses to problems. Furthermore, more than one thousand ordinary people—about one employee in a dozen at Kyocera—are given chances to become leaders, who can learn by experience how difficult and how enjoyable management is. As a result, this system develops entrepreneurship of the leaders to play the principal roles in the empowerment management, and consequently leads to high profitability and fast growth of Kyocera.

### The Amoeba Accounting System

While leaders are responsible for the entire business, just like the presidents of real companies, all of them do not have enough experience to manage profit centers. Thus, the first question of this study is how those inexperienced leaders can make such difficult decisions. The key point is the use of management accounting information. The first feature of the amoeba accounting system is its simplicity. There is only one performance measure, added value per labor hour, which is calculated as follows<sup>6</sup> :

- Step 1. Total Amount of Shipments  
- Purchasing Costs from the  
Company's Other Amoebas  
= Total Outputs
- Step 2. Purchasing Costs from Outside  
the Company + Operating  
Costs + General Administrative  
Costs = Total Expenses
- Step 3. Total Outputs - Total Expenses  
= Deduction of Sales
- Step 4. Deduction of Sales / Total  
Labor Hours = Added Value

per Hour

These numbers are reported to every single amoeba by income statements. The income statements are as simple as household account books and are useful for pinpointing problems. Leaders can know the amoebas' performance at a glance. By comparing added value per hour with in-house standard wage rate, each amoeba will know if it is earning its living, because labor costs are excluded from total expenses. (Fig.4 is a sample of a manufacturing amoeba's statement.)

Accounting often gives the impression that it is something like a black box only accounting experts can read and handle. When starting the amoeba system, Kazuo Inamori, founder of Kyocera, was not satisfied with conventional management accounting systems because they were too complicated for amoeba leaders having limited accounting knowledge. To derive potential ability from ordinary people, Inamori, who used to be an engineer, strongly believed that the management accounting system should be designed for leaders running amoebas instead of accountants. That is why the added value per hour and the income statement were invented.

Without the help of accounting sections, it is easy for leaders to understand the statement and to calculate their income and expenditure. Because each category of the accounting report indicates the impact on the bottom line, and because amoebas are small organizations, leaders can fully grasp the situation of their amoebas and point out the confronting problems. To be brief, there are only three ways to raise the added value per hour: increasing sales, cutting costs down,

Total Amount of Shipments	$A=B+C$	--,---
External Shipments	B	-,---
Internal Shipments	C	--,---
Internal Purchases	D	-,---
<b>Total Output</b>	<b><math>E=A-D</math></b>	<b>--,---</b>
<b>Total Expenses</b>	<b><math>F=a+h+\dots+p</math></b>	<b>--,---</b>
Raw Material Costs	a	---
Conversion Costs	b	--,---
Repair Costs	c	---
Electricity	d	---
.....	...	.....
.....	...	.....
Interest and Depreciation	m	---
Common Expenses	n	---
Factory Expenses	o	---
Selling and Administrative Expenses	p	---
<b>Deducting of Sales</b>	<b><math>G=E-F</math></b>	<b>--,---</b>
Total Labor Hours	H	-,---
<b>Added Value per Hour</b>	<b><math>I=G/H</math></b>	<b>---</b>

Fig 4. Income Statement of Manufacturing Amoeba

and reducing labor hours, therefore even inexperienced leaders can analyze internal and external circumstances and can plan proper strategies to run their amoebas.

### Feedback of Performance

The second feature of the amoeba accounting system is its quick and frequent feedback cycle. In many companies the results are returned once a month after some weeks, but in Kyocera everyday and the fol-

lowing day. Kyocera employees think monthly feedback data is so late and so aggregated that leaders can not utilize those data to promote continuous improvement. Quick feedback can bring out early discoveries of problems and quick actions to cover failures. Additionally, frequent feedbacks deepen members' awareness of profit. Thus, such reporting system is indispensable to supplement the leaders' inexperience and eventually to achieve empowerment.

The third feature is the openness of in-

formation. Necessary and sufficient accounting results on the amoebas' performance are passed not only to executives and leaders but also to all amoeba members including part time workers. At the morning meeting, the results of the previous day and the targets of this day are announced to every employee, who can understand those numbers in the same way as leaders.

Under the given condition, added value per hour can be simply compared among amoebas because the measure is not influenced by the number of amoeba members, function, or products, but by the efficiency and effectiveness. Thanks to feedback information, all members enjoy such competitions as games and are self-motivated to win. Besides, anyone can know whether his or her amoeba is able to continue to earn its own living. If it seems hard to survive, all amoeba members will try to unite efforts. As empowerment relies on bottom-up suggestions, sharing accounting information enhances their commitments and furthers workers' participation and continuous improvement. In this way, no matter how inexperienced leaders may be, they can count on other members' small but many ideas, and can run their amoebas well.

Although the management accounting system to materialize those three features over numerous amoebas is likely to initiate a large amount of administrative expenses, Kyocera considers that these expenses are indispensable for the amoeba system and can be paid off. On the other hand, the company has accumulated know-how about the operation of the accounting system and has been reducing its running costs.

## The Education of Corporate Philosophy

Empowerment inevitably has some risks that might encourage leaders and members to take their selfish actions and to get the whole company to fall into confusion. When extremely tight profit targets are set for such small centers as amoebas, leaders should regard not only their centers' interests but also the whole company's. Thus, the second question of this study is how such highly autonomous micro-profit centers can join their forces.

Inamori thinks it is the key to successful empowerment to train leaders to be persons of good judgement who can take suitable actions by themselves in any situations. For this purpose, the company tries to educate them about its credo, Kyocera Philosophy. The philosophy of striving to "Do what is right as a human being" shows leaders the aim of the amoeba management, required mental attitude, and code of conduct.

In Kyocera Philosophy, cooperation is emphasized. According to Inamori's idea, necessary condition to work the amoeba system effectively is to have absolute mutual trust among all corporate members, such as between executives and employees, and among fellow workers. If there is no corporate culture to regard the right way of life, this system would excessively arise rivalry among amoebas or would cause their improper acts, and would bring about the ruin of companies in the end (Inamori, 1997).

Actually, no amoeba has sufficient resources to succeed without support from others, though they are regarded as self-support units. Paradoxically speaking, amoebas

can not help living together in mutual prosperity. The way to manage such collaboration is one of the most important matters for micro-profit centers, just as same as the importance of forming strategic alliances for real companies. Therefore, well-educated leaders do not neglect cooperation and always communicate with other amoebas to maintain good relationship.

### Communication Supported by Accounting

It should be added that empowerment does not mean leaving leaders alone. To complement the education of the corporate philosophy, executives and superiors also have to make firm commitment to the amoeba management. Since forcing their opinion on leaders is against the spirit of the amoeba system, they are to give leaders impartial advice from broader points of view. When two amoebas do not reach agreement on dealing, superior above them will arrange meetings, mediate between the conflicting claims, and adjust their activities.

It is the management accounting information that let executives and superiors know the actual situation of amoebas and communicate fully with leaders. Kyocera's accounting system is proud of its accuracy as well as the simplicity as discussed above. As shown in Fig.4, the accounting system calculate income and expenditure per amoeba, which includes common expenses and administrative expenses. What executives have to do to get the whole company's profit is just to subtract total labor costs from the sum of all the amoebas' deduction of sales. By dividing or combining the amoebas' results at their own

discretion, they can freely reach income and expenditure per division, function, factory, manufacturing process, product, sales area, and customer.

Because the size of amoeba is small, and because the accounting system is accurate, amoebas do not have any room to hinder their bad results caused by their selfish acts or neglect of cooperation. Executives and superiors can monitor all the amoebas regardless of their size and, if necessary, can give the leaders proper guidance. So long as every Kyocera employees share the accounting information and knowledge, communication supported by accounting data has advantages of making discussion concrete and practical. Since the visibility of organization is enhanced in this way, the accounting system works as a useful communication tool among executives, superiors, leaders, and amoeba members. In the end, coordination among highly autonomous micro-profit centers is realized.

### Summary and Conclusion

Kyocera uses the amoeba system to promote empowerment. Developing entrepreneurial leadership is the ultimate purpose of this system, which brings the perfect harmony between organization, management accounting, and corporate philosophy (see Fig. 4).

Though leaders do not have enough experience in business, they are required to run their micro-profit centers like the presidents of real companies. Our first question is how those inexperienced leaders can make proper decisions. The key point is the use of management accounting information.



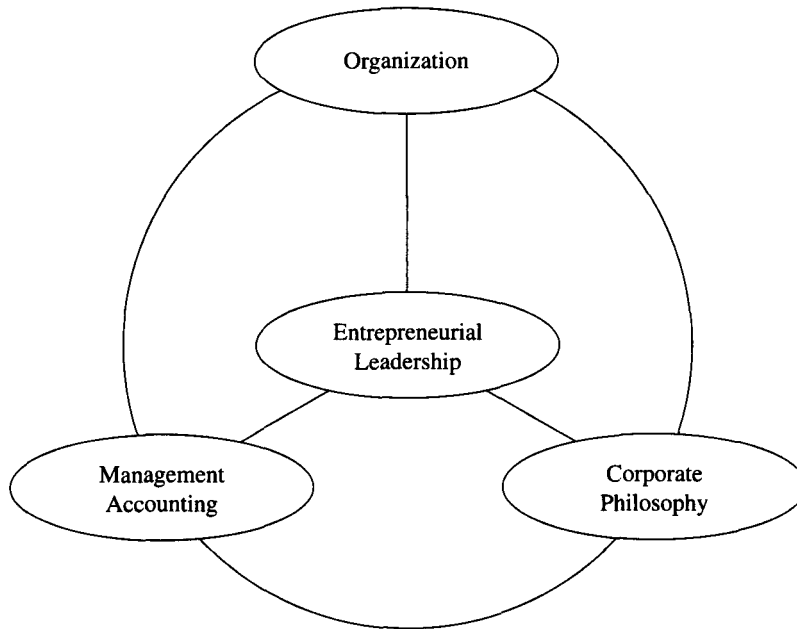


Fig 5. Empowerment by the Amoeba System

Kyocera's accounting system is proud of the simplicity of calculation, the quickness and the frequency of feedback, and the openness of information. Such reporting system is indispensable to supplement the leaders' inexperience.

However, empowerment has some risks that might encourage leaders to take their selfish actions and to neglect cooperation among amoebas. The second question is how highly autonomous micro-profit centers can join their forces. Kyocera tries to train leaders to be persons of good judgement who can take suitable actions by themselves in any situations. For this purpose, the company educates them in the corporate philosophy. And executives and superiors are also sup-

posed to give advice, mediate between the conflicting claims, and adjust their activities. The accounting system is so accurate that it can work as a useful communication tool among all the members of the company.

To conclude, let us consider the implications of this study. The first point to notice is the relationship between empowerment and accounting. Though Johnson (1992) emphasizes the importance of empowerment, he argues that accounting information must be removed from the operational control system. Tani (1996) argues against Johnson that as long as management accounting system is well designed, it can promote empowerment at least in the case of the micro-profit center management. In Kyocera, this accounting

system has practical utility to amoeba management, and plays the important roles. This fact supports Tani's opinion.

The second point is the ways to implement and control strategies. Simmons (1995) describes that there are four basic levers to control them: beliefs systems, boundary systems, diagnostic control systems, and interactive control systems. And it requires a balance among them to implement strategy effectively<sup>7</sup>. Simmons's idea can be applied to the case of Kyocera. Its accounting system works as a diagnostic control system and an interactive control system, and its corporate philosophy works as a beliefs system and a boundary system. Besides, the accounting system and the philosophy complement each other. Kyocera has been armed with such unique and excellent management control system, which is its core competence (Hamel and Prahalad, 1994).

However, to discuss these issues is beyond the scope of this brief paper. Further investigation is expected for further understanding of the amoeba system, micro-profit center system, and empowerment.

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## Notes

- 1 An earlier version of this paper was presented at the 17th Annual Congress of the European Accounting Association in Antwerp, Belgium 6-8 April 1998.
- 2 In addition to Kyocera, Cooper provides the examples: Higashimaru Shoyu, Kirin Kyoto Brewery, Olympus, Taiyo Group. Tani and I have conducted field researches at NEC Saitama, Sony Minokamo, and so on.
- 3 Exceptions are Cooper op. cit., pp.303-316, and Hamada and Monden(1989).
- 4 Professor Takeyuki Tani, Kobe University.
- 5 The amoeba management workshops are held at regular intervals to promote the amoeba system to other outside compa-

nies by Kyocera's consulting subsidiary,  
Kyocera Communication Systems.

- 6 These steps are prepared by referring to Hamada and Monden, op. cit., p.203.
- 7 Simmons writes, "Beliefs systems are used to inspire and direct the search for new opportunities. Boundary systems are used to set limits on opportunity-seeking behavior. Diagnostic control systems are used to motivate, monitor, and reward achievement of specified goals. Interactive control systems are used stimulate organizational learning and the emergence of new ideas and strategies (Simmons, p.7)."